



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>

LA

248
G7
M5

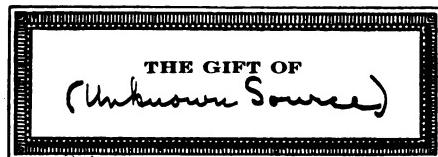
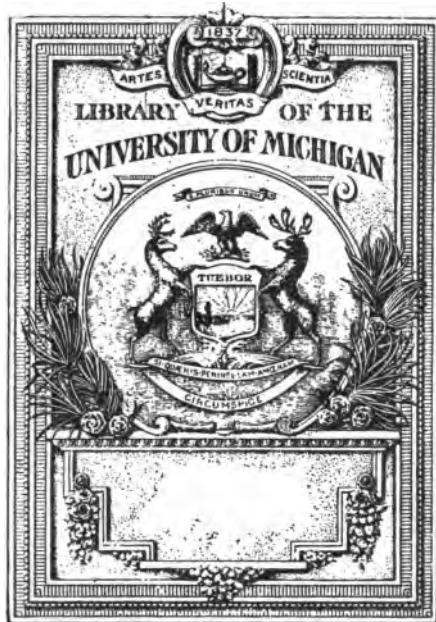
A 437633

919

A SURVEY
OF THE CITY SCHOOLS
OF
GRAND JUNCTION
COLORADO

DISTRICT No. 1
MESA COUNTY

MAY · 1916



LA
248
G7
M5

A Survey of the City Schools OF Grand Junction, Colorado

District No. 1, Mesa County



Survey Committee

FRANK L. CLAPP Director of the Survey
Assistant Professor of Education, University of Colorado
and Superintendent of Extension Work for
Western Colorado

WILLIAM A. COOK
Assistant Professor of Education, University of Colorado
and High School Visitor for the University

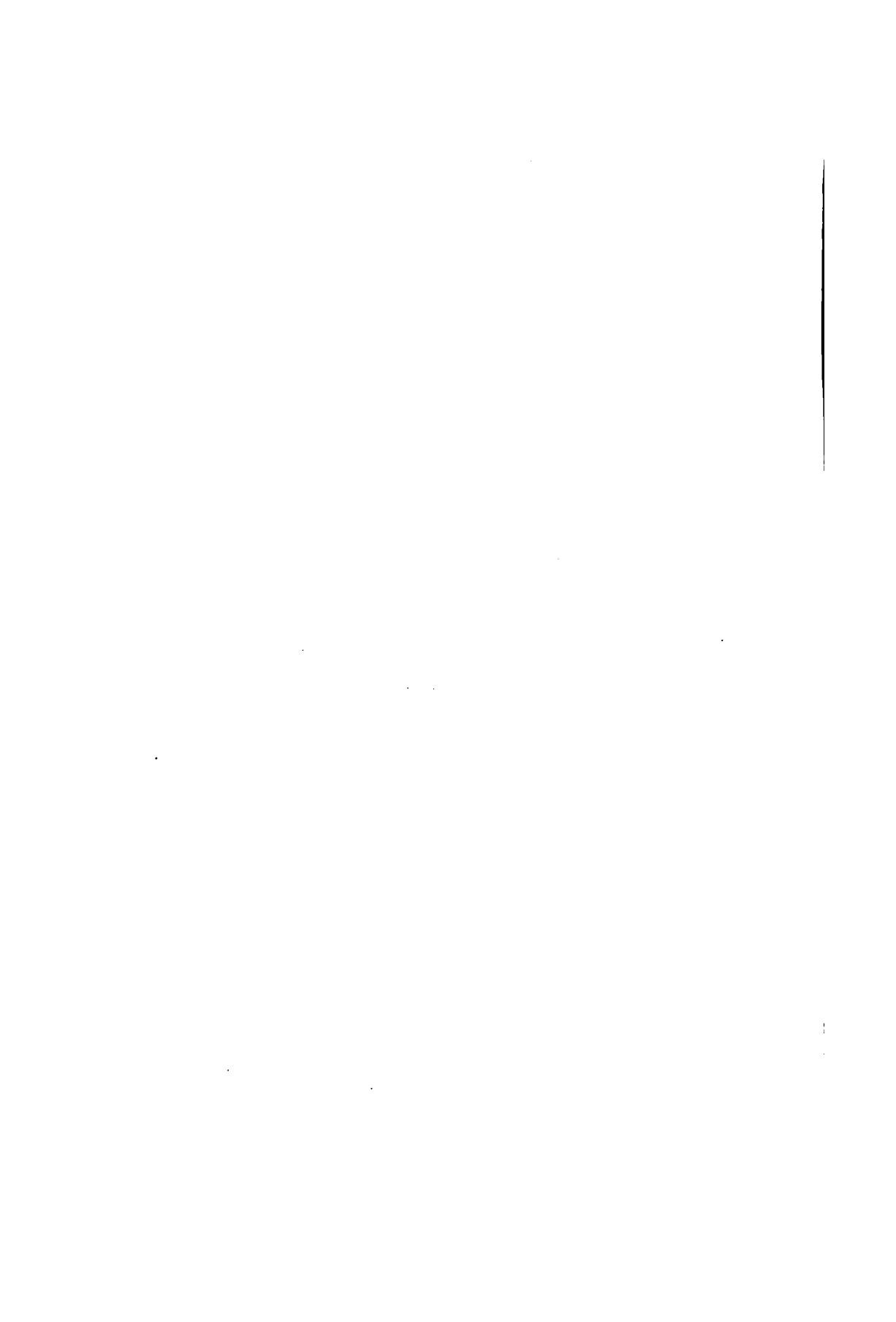
SAMUEL QUIGLEY
Dean of the Colorado State Normal School
BEN GRIFFITH . . . Chairman of the Survey Committee
HARRY B. JONES T. M. TODD

Source Unknown
5-21-1923

FOREWORD

This study, while officially addressed to the Board of School Directors, is presented to the patrons and friends of the schools of Grand Junction with the hope that it may result in better schools. While the Survey Committee has not been unmindful of the immediate occasion of its work as indicated in the Introduction which follows, yet it has ventured to keep in mind and to discuss in a brief way some of the more general problems of school organization and control as they confront the people of any community. A common understanding of some of the fundamental principles underlying public education on the part of everyone concerned should make easier and more pleasant the complex and difficult task of organizing and administering an efficient and economical system of schools adapted to the needs of the community.

**THE BOARD OF DIRECTORS.
THE SURVEY COMMITTEE.**



LETTER OF TRANSMISSAL

**To the Board of Directors of School District No. 1,
Mesa County, Colorado.**

Gentlemen:

The Committee recently chosen by you to make a survey of the schools of District No. 1 beg leave to submit the following report.

May we take this opportunity to express our appreciation of the uniform courtesy and cooperation accorded to us by everyone with whom we had occasion to work in the collection of data and the preparation of our conclusions.

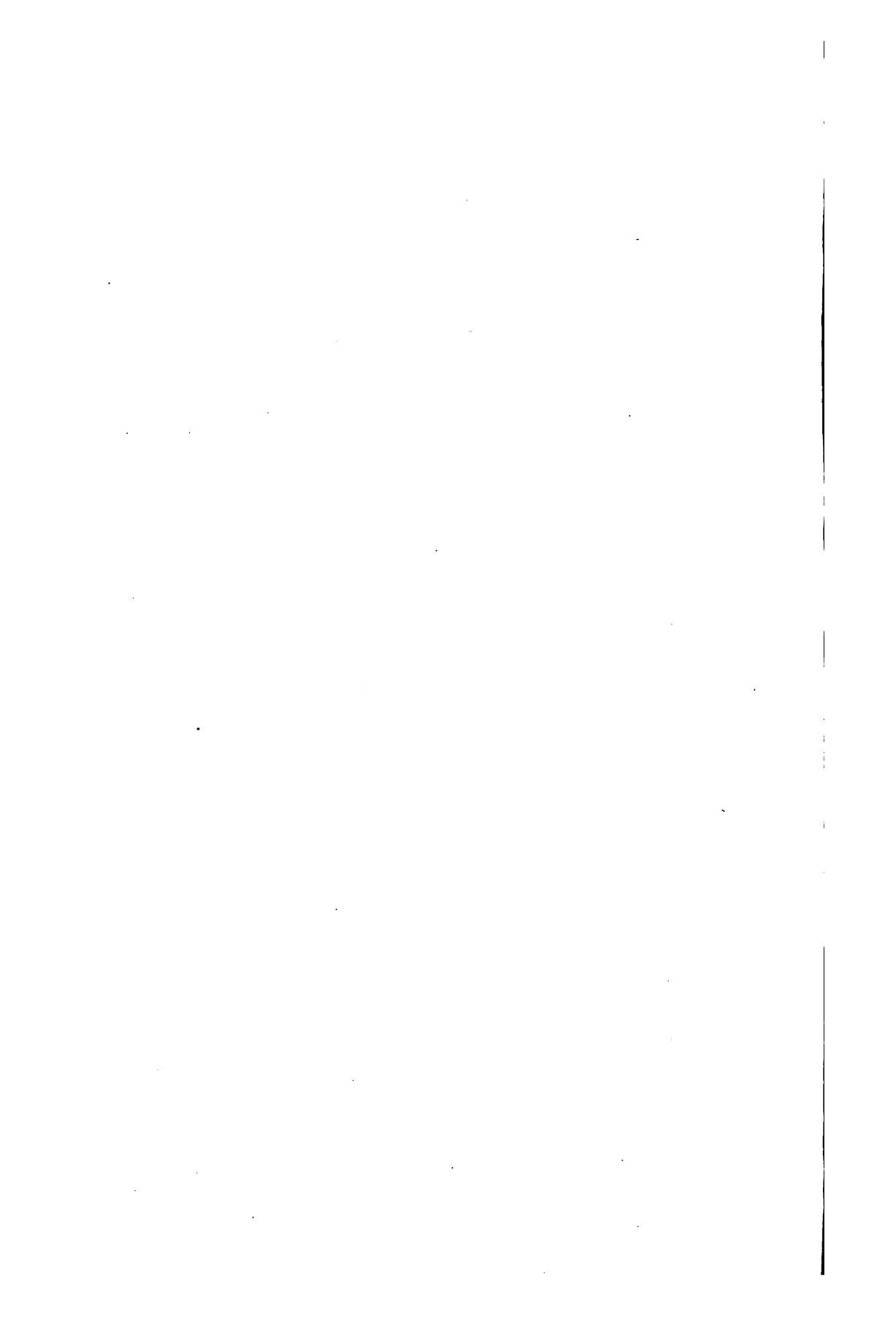
We trust that our efforts may result in the betterment of the schools of Grand Junction:

Lay members

BEN GRIFFITH, *Chairman*
H. B. JONES
T. M. TODD

Professional members

FRANK L. CLAPP, *Director*
WILLIAM A. COOK
SAMUEL QUIGLEY



INTRODUCTION

Early in February the Director of this Survey was invited by the Board of Directors of School District No. 1 to appear at its next regular meeting and to discuss the general purpose and character of school surveys. A similar invitation was received later from the Board of Directors of the Grand Junction Chamber of Commerce. The latter body attended the meeting of the School Board and the subject was canvassed somewhat thoroughly.

On March 4 the School Board adopted the following resolution:

"Whereas, a petition signed by many representative citizens has been filed with this Board requesting that this Board have a survey of our school system made, and

Whereas, there seems to be a general demand for such survey and as the Chamber of Commerce has agreed to defray the expenses of such survey in excess of One Hundred and Fifty Dollars,

THEREFORE, BE IT RESOLVED, that it be the sense of this School Board that a financial and educational survey of the school system of School District No. 1, Mesa County, Colorado, be made by a committee of six men consisting of the following: Dr. Frank L. Clapp and Dr. William A. Cook of the University of Colorado, Dean Samuel Quigley of the Colorado State Normal School at Gunnison, Ben Griffith, Harry B. Jones and T. M. Todd of Grand Junction, Colorado, and any member of the school board may be a member ex-officio of this Committee, and that this School District cooperate with the Chamber of Commerce by paying One Hundred and Fifty Dollars (\$150.) toward defraying the expenses of such survey, provided this School Board be furnished a complete type-written report of the survey."

The immediate occasion for the survey was a demand on the part of the people for a reduction in the public expenses and the desire on the part of the Board of Directors to meet this request without crippling the schools.

While the professional members of the Committee have been responsible for the major portion of the study, the six members have worked as one body. Detailed plans for the work were discussed and agreed upon by the entire Committee before being put into operation. Each of the three professional members was primarily responsible for certain phases of the work but consultations were held daily and the work of each one was reviewed. The lay members were in constant touch with the professional members and their advice and suggestions were

acted upon whenever in the judgment of the entire Committee such course seemed best. The report represents, with a few minor exceptions, the unanimous judgment of the six members of the Committee.

The professional members put in on the ground a total of ten days each. The time spent by the lay members cannot be accurately estimated but, as stated above, they were in constant touch with the work at all times and some one or more of them visited each of the buildings and many of the classes.

On the afternoon of the first day of the work a meeting was held with the Superintendent, the School Board and the teachers at which the general purpose and plans of the Committee were explained. Later another meeting was held with the Board at which many problems of the schools were discussed informally.

The following letter was issued to the public when the Committee began its work:

"To facilitate the work which the Committee hopes to do an opportunity will be given to any person to bring to the attention of the Committee such matters of general criticism or constructive suggestion as should receive consideration. In order that time may not be wasted by either those desiring a hearing or by the Committee, it is requested that any one who wishes to appear state in writing the general character of the matter to be presented. Upon receipt of such communications the Committee will arrange a time and place for each hearing. All communications will be confidential, and all hearings private. Communications should be addressed to

"FRANK L. CLAPP,
Director of the Survey."

No one appeared before the Committee in response to this invitation.

In the beginning of the work twenty Colorado towns were selected for purposes of comparison and blanks were sent to the superintendents asking for information. Not all of these were able to reply so that some of the comparative tables are not full, and no one of them contains more than eighteen schools.

The members of the Committee received no compensation except their actual expenses. The total expense of the study including the printing of 500 copies of the report was \$167.54. Of this amount \$150.00 was paid by the Board of School Directors and \$17.54 by the Chamber of Commerce.

CHAPTER I.

ORGANIZATION AND CONTROL

Location

School District No. 1 embraces the civic corporation of Grand Junction, with a population of about 8,000, and outlying territory to the extent of about 144 square miles, the total area of the district being 147 square miles.

Grand Junction is the point at which two branches of the Denver and Rio Grande railroad meet. It is the largest town in Western Colorado, and is an important trading and shipping center. The dominant industry in the immediate vicinity is fruit raising, this being the home of the famous Grand Valley fruit.

Census, Enrollment, and Buildings

The school census for February, 1916, was 2,007. The total enrollment for the school year 1915-16 up to May 1, was 1926.

TABLE NO. 1.

Showing Number and Location of Buildings,—Grades Accommodated and Number of Teachers in Each.

Building	*Location	Grades	Number of Teachers
Bryant	S.W.....	1,2	2
Riverside	S.W.....	3,4,5	1
Emerson	S.E.....	1,2,3,4,5,6	10
Hawthorne	N.W.....	1,2,3,4,5,6,7,8	8
Lowell	Cen.....	1,2,3,4,5,6,7. Kindergarten	16
Franklin	Cen.....	7,8,9	8
High	N.E.....	10,11,12	8
Whittier	Cen.....	Commercial, Domestic Science, Special Supervisors	5
Total			58

*Part of city

Divisions of the School

The School system consists of the Kindergarten department, the Elementary schools and the High school. The Elementary schools do eight years of work, and the High School is of the conventional four-year type. Children are admitted to the Kindergarten at the age of five, and to the first grade at the age of six, their ages being reckoned as of December 1 following admission. Instruction and promotion is by grade in the Elementary school but by subject in the High School.

Pupils coming from other schools and applying for admission to the grades of the Grand Junction schools, are given an oral examination by the Superintendent, and assigned to particular grades on the basis of this examination. Corresponding examinations are not usually given to those coming from other high schools with proper credentials.

Retardation and Acceleration (Age Standard)

Retardation and acceleration measured according to the age standard have to do with the age of the pupil in relation to his grade. Since a pupil enters the first grade ordinarily at the age of six, he is known as an *accelerated* pupil, or as a pupil who is *young* for his grade, if he is in the first grade and under six years of age. Since many children do not enter the first grade until they are seven, and consequently do not finish the grade until they are eight, they are not classed as *retarded* pupils until they are past eight years of age and still in the first grade. Pupils between the ages of six and eight are known as *normal* pupils. Corresponding age limits have been established for each of the other grades. The following table will make clear the basis on which pupils in the Elementary schools are classified as accelerated, normal, or retarded pupils according to the age standard.

TABLE NO. 2.
The basis for classifying Pupils as Accelerated, Normal, and Retarded.

(Age Standard)

Grade	Accelerated (Under) Age	Normal (Between) Ages	Retarded (Over) Age
1.....	6	6- 8	8
2.....	7	7- 9	9
3.....	8	8-10	10
4.....	9	9-11	11
5.....	10	10-12	12
6.....	11	11-13	13
7.....	12	12-14	14
8.....	13	13-15	15

TABLE NO. 3.
Showing the number and ages of the Accelerated, Normal and Retarded pupils in each grade.
(Age Standard)

Ages	Grades							
	1	2	3	4	5	6	7	8
5- 6	3							
6- 7	141	14						
7- 8	38	98	14					
8- 9	15	38	67	10				
9-10	2	20	48	78	7			
10-11	1	8	42	36	48	8		
11-12	3	7	21	59	50	10	1	76 Accelerated, 6 per cent
12-13	1	4	12	17	50	27	9	874 Normal, 68 per cent.
13-14		2	13	14	30	29	36	
14-15			4	6	11	29	33	340 Retarded, 26 per cent
15-16			1	4	5	22	23	
16-17					1	1	15	
17-18					1	1	2	
18-19							2	
Total	198	182	184	175	155	156	119	121 1290

In the above table the pupils indicated in black-faced type are normal pupils, those indicated by the numbers above the black-faced figures are accelerated pupils, and those below are retarded pupils.

There are two conditions indicated in the above table with which we should be concerned, *viz.*, the wide spread of ages among the pupils in each grade and the large number of retarded pupils. It will be noticed that in each grade there is a spread of age of five or six years, the first grade for instance containing three pupils under six years of age and one over ten. The disadvantage of this condition is to be found in the fact that the teacher of each grade has under her instruction pupils whose ~~interests are greatly different~~.

~~The~~ is handicapped by the fact with the younger and the explained above, are those pupils tend to drop out of school course. In addition to the work of life so early that a school system be so over-aged pupils so far as the conditions are not altogether favorable. A school cannot put pupils as they enter school at the large percentage of retardation of both the school

Carrell No. 628

Call No.

LA
248
67
M5

Survey
Grand Junction
Colorado

Grand Junction schools
schools in the matter of

pupils in thirteen schools

Name S. Auger
Date 2/26/61

Percentage of
Retardation

.....	13
.....	14
.....	17
.....	18
.....	19
.....	21
.....	21
.....	23
.....	26
.....	28
.....	32

upon the number of pupils
at beginning April 17, 1916,
last birthday preceding the
5. These percentages must
be retardation found in other
surveys are as a rule computed on

the basis of the number of pupils who belong to school at the end of the year and their ages are taken as of June 1. This latter method will increase materially the percentage of retardation, hence we wish to repeat that the above percentages are comparable only with each other.

Grade Repetition

In any school system there are certain pupils who for various reasons do not succeed in making one grade per year during their actual school life. They may be called "repeaters." Any school should avoid the presence of repeaters in so far as it is at all possible. Not only does the repetition of a grade discourage and retard a child, but the total money cost to the district of the children who repeat is considerable.

Among the 1290 pupils who belonged to the schools of Grand Junction during the week beginning April 17, 1892 or 65 per cent had at some time repeated one or more grades. These 832 pupils may be divided into two classes as follows,—126 who had repeated in other schools, and 606 who had repeated in the schools of Grand Junction. It will be noted that practically 50 per cent of the 1290 pupils had repeated one or more grades in Grand Junction. These 606 pupils in turn may be divided into two classes as follows,—those who failed in their work, and those who were put back when they came from some other school. Those who failed numbered 428, or 71 per cent of the total number repeating in Grand Junction, while those who were put back when they came numbered 178, or 29 per cent. To be sure some of these pupils came from schools where the distinction between grades is not marked and perhaps it is not exactly correct to say that they were put back.

The number and percentage of "repeaters" in the schools seem excessive. A school having a large percentage of repeaters may defend itself on the ground that its course of study is more extensive than that of other schools or that the quality of work done is superior. A careful comparison of the course of study in the schools of Grand Junction does not indicate that the work required is more extensive than that in other schools. So far as the standard tests described in Chapter III. reveal the quality of work done in the schools, it cannot be said that this is superior.

The Batavian System

In order to prevent pupils from failing and being compelled to repeat their grade the Lowell and Emerson schools are each provided with a Batavian teacher to whom pupils are sent for special assistance. Since these two schools are provided with such teachers and the Hawthorne school is not a comparison of the repetitions in these buildings on a percentage basis ought to reveal the efficiency of the Batavian system. Reference to Table No. 1, p. 9, will indicate that these three schools are the only ones which would be comparable since they are the only ones that

maintain a majority of the eight grades. The social and economic differences among these three communities which cause differences in regularity of attendance, etc., may account in part for the different showing.

TABLE NO. 5.
Showing Percentages of Failures in Batavian and Non-Batavian Schools for Years 1914 and 1915.

	Batavian Emerson	Batavian Lowell	Non-Batavian Hawthorne
1914-15.....	7	6	10
1915-16*.....	8	9.5	7
Average.....	7.5	7.8	8.5

*Failures for this year approximated by the teachers.

An analysis of the above percentages would reveal that the present Batavian system is not markedly efficient. The largest percentage of failures is to be found in the Hawthorne school at the end of the year 1914-15, but the Lowell school is only .5 of one per cent. behind in 1915-16. The averages reveal only one percentage of difference between the lowest and highest. The efficiency of the system would be more fairly indicated by figures covering several years but records giving this information are not kept.

Recommendations

The entrance examinations now given by the Superintendent to pupils applying for admission to the grades should be discontinued. The demotion of pupils as pointed out on page 6 is responsible for 29 per cent. of the repeaters found in the schools. The Superintendent informs the Committee that when a pupil is assigned to a grade on the basis of this examination that he is later promoted if the quality of his work indicates that he can do the work of the next grade. This is not likely to be the case, however because of the fact that new text books are placed in the hands of new pupils and they find plenty of totally new material with which to busy themselves. Consequently their acquaintance with the fundamentals is not at once evident. Added to this is the fact that many teachers are not inclined to recommend the promotion of particularly good pupils since such promotion deprives their rooms of the presence and stimulus of these children.

As a substitute for the present Batavian system it is the judgment of the Committee that there should be established at the Lowell school an ungraded room, to which would be assigned such pupils as, in the judgment of the Superintendent and the different principals and teachers, cannot do the work of the grade to which they belong with the rest of the class, and also those pupils who for a time at least can make more rapid progress than their fellows. To this room also may be assigned those pupils who enter from other schools and whose knowledge of fundamentals does not enable them to "fit" into any one grade. These pupils should remain in this room until they are ready to take up

the work in a regular manner with some grade. This room should be under the tuition of one of the strongest teachers it is possible to obtain. Pupils should not be assigned to the ungraded room until the regular classroom teacher has made special efforts to keep them with the remainder of the class. When any pupil is assigned to this room, whether because of slow or rapid progress, his case should be talked over with his parents, the purpose of his being placed there made clear, and the cooperation of the parents secured if possible.

In order to prevent repetition in the upper grades and to encourage pupils to remain in school the Committee recommends the organization of an Intermediate school. This school should embrace the work of what is now the Seventh, Eighth and Ninth grades and should be housed in the Franklin building. Reference to Table No. 1, page 1, will reveal the fact that practically all of the Seventh-, Eighth-, and Ninth-grade pupils are already housed in the Franklin building. The new plan would mean the transfer of a very few pupils from the Hawthorne and Lowell buildings. This would not be serious since the former building is only six blocks from the home of the proposed Intermediate school while the Lowell building is on the same block.

The program of studies in this school should be in part optional so that a pupil could take four, five or six subjects, according to his ability, strength and outside duties permit. To a certain extent he should also be allowed to select his work in line with his particular interests. The selection of studies should be under the supervision of the Principal of the school, and in consultation with the parents and those teachers who are intimately acquainted with the child. The instruction should be departmental and promotions should be by subjects.

The pupils in this school should be seated permanently in certain rooms presided over by one of the departmental teachers who should be responsible for the general welfare of the pupils in her room in much the same way as is the teacher of the seventh or eighth grade under the present system. The Principal of the school should teach no more than three periods a day, in the afternoons, the remainder of the time being devoted to supervision.

Grading and Examinations

In both the Elementary and High Schools examinations are held at the end of each month. Scholastic marks are given in letters with a corresponding significance in percentages. Three days are set aside for the examination in the High School. Pupils who make class records above a certain standard are exempt from examination. An average of 75 per cent. in all subjects with nothing below 60 per cent. entitles a pupil to promotion.

Recommendations

Examinations in High School should not be given oftener than every six weeks. This is the prevailing practice. The

present system means that twenty-seven days per year or practically one and one-half months are devoted to examinations. This does not include the time devoted to finals.

The rule permitting the pupil who makes an average of 75 per cent. to pass in a subject in which his mark is as low as 60 per cent. should be changed so that it applies only to required subjects.

Very careful attention should be given by the Superintendent and teachers to the distribution of marks among the different values. Some teachers give high marks while others grade much more closely. A study of the marks assigned by the High school teachers at the end of March reveals the fact that 98 per cent. of one teacher's marks were among the upper four values (A+, A, B+, B) and only 2 per cent. among the lower four (C+, C, D+, D), while another teacher distributed only 57 per cent. of her marks among the upper four values and 43 per cent. among the lower four. Similar conditions were found in the grades. This is not fair to either the pupils or the teachers.

Sanitation

Recent progressive school legislation says that the ratio between the window space and the floor space of the school room should be 1 to 6. Only fourteen out of fifty-three rooms reach this standard. In many cases the transoms above the windows have been painted over with dark paint and in one room the upper half of each window had been darkened with the same material. All shades are opaque. In spite of the fact that the lighting space is as a rule inadequate, when all of the rooms were visited during one afternoon, eight were found with the shades drawn so as to exclude one-fourth of the light; eight others had one-half of the light excluded; and five rooms had three-fourths of the window space covered with opaque shades. In no one of these rooms was there any possible reason why shades should be drawn. All but eight out of fifty-three rooms violate the standard that the height of the windows shall not be less than one-half the width of the room.

A rough and ready judgment of the adaptability of the seats and desks to the pupils who were seated in them indicated that one-tenth of the pupils were improperly seated. Comparatively few adjustable desks and seats were found.

Recommendations

In the erection of buildings in the future most careful attention should be given to their lighting and the very low standard indicated above should not be violated.

The present opaque shades should be replaced at once with shades that are translucent. No lighting area should be made permanently opaque under any circumstances.

None but adjustable seats and desks should be purchased in the future.

The third grade room at the Emerson building should be remodeled so as to admit more light from the sides and the present skylight should be removed.

The toilets at the Emerson building should be equipped with a new flushing system at once. This antiquated toilet system as well as that of the Lowell building should be replaced by modern systems as soon as possible.

The Bryant and Riverside buildings should be replaced by a new and modern building as soon as economic conditions permit.

Lay Control

According to the school law of the state the District is of the First Class having a school population of more than one thousand, the actual school census in February, 1916 being 2007.

Lay control of the schools is vested in a Board of Directors of five members. Two of these are elected each biennium for a term of six years with the exception that only one director is elected at each third election. Unexpected vacancies are filled by the remaining directors. Very rarely does a member serve more than one term.

It is to the advantage of any institution controlled by a Board of Directors to be assured that at no time shall the majority of the members of such Board be made up of new and inexperienced men. Yet this often happens under the law governing first class school districts in Colorado when a vacancy occurs by death or resignation during a year in which two members are to be seated. The law should be so changed as to provide for a five year term and to permit only one new member to take his seat each year, the other member who was elected at the same time using the time until his installation in becoming acquainted with his duties.

The following table will make this plan clear,—member "A" being replaced by member "a" and so on:

Year	Elected	Seated	Learning duties
1915	A & B	A	B
1916	no election	B	
1917	C & D	C	D
1918	no election	D	
1919	E & a	E	a
1920	no election	a	
1921	b & c	b	c

This plan avoids the expense of annual elections and provides for no more than one new member of the board each year, except in the case of unexpected vacancies.

The law further provides that the officers of the Board shall be a President, Secretary, and Treasurer. The Secretary and Treasurer may or may not be members of the Board. In District No. 1 the Secretary is a paid employee who is not a member of the Board, and the Treasurer is also an outside man, but receives no salary.

Professional Control

The professional control of the schools of Grand Junction is entrusted to a Superintendent, and to various principals and teachers. The Superintendent is the head of the system and is chosen by the Board of Directors for such term as they may see fit. The present Superintendent was chosen in the spring of 1915 for a term of three years. At this time he had still one year of a three-year term to serve but at his request the old contract was abrogated and a new one made.

A three-year term for the Superintendent is quite common and desirable. Generally speaking it is not good practice for the Board to reelect a Superintendent before the expiration of his term. This permits a school man to ask for reelection at auspicious times and thus to perpetuate his administration.

Relation of Lay and Professional Control

Educational thinkers agree that the function of school control may be divided into four rather distinct phrases, *viz.*, legislative, administrative, inspectorial, and supervisory*. A definition of these functions and a discussion of their division between the Board and Superintendent should contribute to efficient and pleasant working relationships between the two.

The *legislative* function has to do with questions of general purpose, policy, and finance. It does not concern itself with details. It requires broad, general knowledge of social and economic conditions. It does not require special, technical knowledge of ways and means. It determines, for instance, whether the school shall have for its purpose vocational training, technical instruction, or preparation for college. It does not determine whether a course in German or in Spanish shall be a part of the college preparatory work. It decides whether \$50,000 or \$75,000 shall be expended for school purposes. It does not decide whether examination paper of quality A or quality B shall be purchased. It rules whether or not pupils in general shall be required to take physical training. It does not concern itself with individual pupils who may claim exemption from the rule on particular grounds. *The legislative function belongs to the School Board.*

The *administrative* function has to do with ways and means of carrying out the general purposes and policies of the Board. It decides what shall constitute vocational training or college preparation; what methods of instruction shall be employed; what quality of paper is best suited to the needs of the school, etc. It has to do with the internal life of the school; with details of organization; with examinations; with records, reports, etc. It requires special, technical knowledge. *The administrative function belongs to the Superintendent and his professional assistants, the principals and teachers.*

The *inspectorial* function has to do with determining whether or not the purposes and policies of the school are being carried

*Elliott, E. C., City School Supervision, PP. 7-13.

out, and with questions of efficient and economical organization and control. It evaluates the results of the work of the school; it measures sanitary conditions and studies systems of financial management. *It is in part a function of the Superintendent but in LARGER part a function of the Board.* However since it requires technical knowledge the Board itself cannot perform this function except in a limited way, but must employ specially trained disinterested assistance for its share of this work. The present survey is an example of inspectorial work performed by outside parties as agents of the Board. This kind of work should be done frequently and in a broadly constructive manner.

The *supervisory* function has to do with questions of service rendered by assistants, principally classroom teachers. It requires very special technical knowledge. It is not critical but helpful. It coordinates and harmonizes the work of the different departments and teachers. It determines the tone and spirit and standards of the school. It sees that proper working facilities and supplies are provided. It belongs to the Superintendent in a general way but in a system such as that of Grand Junction there should be more immediate supervision by principals. Supervision is one of the most vitally essential phases of school control.

It must be remembered in reading the above somewhat categorical and formal discussion of the general relations obtaining between a Board and its Superintendent, that one cannot speak in universally inclusive terms. The division of functions as indicated above does not mean that the Board in the exercise of its functions, or the Superintendent in the exercise of his duties should proceed with no reference to the other controlling agency. It does mean that in general the judgment of one agency or the other should be the primary determining factor, according as the matter in question is one of legislation, or administration, inspection or supervision. For instance, in the selection of teachers, which is an administrative function, the responsibility is upon the Superintendent and his should be the determining voice but he should not select a teacher of whose fitness he cannot convince his Board. The Board on the other hand should realize that the special, technical knowledge of the Superintendent should make him the better judge.

Applications of the Above Principles to the Schools of Grand Junction

As is often the case there is some evidence that the above principles are not carefully observed in Grand Junction.

The Board should not permit the time of its meetings to be devoted to individual cases of discipline, except in very rare instances. This responsibility should be upon the Superintendent, and he should not bring these matters to the Board except for advice.

The making of courses of study should be in the hands of the Superintendent and his professional assistants.

Teachers should be elected by the Board only after nomination by the Superintendent.

At present the professional people connected with the school have very little to do with the purchase or distribution of supplies except to write out requisitions for what is needed. (This is not true of text-books). Supplies are purchased by the purchasing committee of the Board, and distributed by its Secretary. This man is without any technical training or experience in school matters, yet the Superintendent and teachers must depend on his judgment when they ask for an allotment of supplies such as paper, etc. Numerous instances came to the attention of the Survey Committee where the Secretary had refused the full amount of supplies asked for by teachers at least until after repeated requests. This results in a serious handicap of the school work. The general supervision of the selection and distribution of these supplies should be in the hands of the Superintendent. However, the purchasing of supplies should be left in the hands of the Board as at present.

In general the teachers should not bring matters to the Board except through the Superintendent, since he is charged with the responsibility for the schools as a whole. This rule should not be emphasized, so that teachers feel that they will incur the censure of the Board or Superintendent if they speak to the Board concerning matters of vital concern to them. The privilege, however, should not be abused by the teachers or used without due appreciation of its significance.

Supervision of the Schools

The Committee was impressed with the fact that the schools receive very little supervision. The supervisory function is performed altogether by the Superintendent. He states that at least one-half of his time is taken up with office work this year but not so much in former years. This leaves approximately fifty hours per month to supervise the work of fifty-eight teachers in an immediate manner, and to consult with them regarding the general purposes and methods of their work. Teachers report comparatively few and brief visits from the superintendent.

Another evidence of an absence of supervision consists in the fact that teachers of the same grade were using somewhat different methods which left their pupils at the end of the year in quite different conditions for the work of the next grade. For instance, one first-grade teacher uses the phonic method of teaching reading for most part while another uses the word method. At the beginning of the present year a second-grade teacher received pupils from both of these rooms. The result was that the second-grade teacher found herself handicapped by the two differently prepared groups of pupils. Supervision should not impose upon a teacher a detailed method, but it should so co-ordinate methods in a single grade that the product will be of a somewhat uniform character. Again the Committee found that there was a lack of common understanding as to the purposes of certain courses on the part of the Superintendent and those who were doing the instructing. For instance, the Superintendent stated

that the purpose of a certain department in the High School was to prepare the pupils to do practical work. One of the teachers in this department thought the work was intended to give the pupils simply a general training, while another was not at all clear as to what the purpose was. Each of these three stated that if practical efficiency was the chief purpose the character and content of the course would be quite different from what they would if general training were the end in view. No consultations had been held to talk over this matter. Similar conditions were found to obtain in other departments.

It is only fair to say that the same lack of understanding of purposes would in all probability be found in most schools. The committee does not wish to criticise the Superintendent or the teachers in any department, but it does want to emphasize the necessity for attention to this very important phase of supervision.

As stated above, the full responsibility for the supervision of the schools is at present on the Superintendent. Obviously, it is impossible for him to do this work as it should be done.

The Board employs a "principal" at each grade building who is paid from \$95 to \$145 a year for acting in such capacity,—that is she is paid this sum above the maximum salary allowed grade teachers. These principals teach full time. Their duties as principals are chiefly disciplinary.

The principal of the High School and the principal of the ninth-grade at the Franklin building bear practically the same relation to their schools as do the principals in the grade buildings to the schools maintained therein, that is, they teach full time and act as disciplinary officials. Yet, the principal of the High School receives \$1150 and the principal of the ninth grade \$670 above the maximum salary allowed high-school teachers.

The Board is not getting from these two men the services for which it is paying, nor the services which they are capable of rendering. Both are men of training and of supervisory experience.

Recommendations

The principal of the High School should be relieved of at least three-fifths of his teaching duties and be given the direct supervision of the school. He should have a voice in the selection of the teachers; he should be primarily responsible for the courses of study and for the schedule of recitations; he should supervise the instruction of the teachers; he should conduct the general exercises of the school; he should be the central influence in the social life of the school; he should supervise all athletic activities and relationships; he should have time to study in a general and local way the problems of secondary education, and should take up the professional study of educational problems with his teachers in meetings which he himself conducts.

The principal of the ninth grade should be made the principal of the Intermediate School, (p. 14) and should sustain the same general relations to it that the principal of the High School does

to his school under the plan indicated above. These principals should be responsible to the Superintendent who should exercise only a general supervisory control over the two schools.

This would leave the Superintendent free to supervise the work of the first six grades, where the larger numbers of children and teachers are found and where the work needs closer coordination and assistance and more expert supervision. He should cut down his present office work and be in close touch with the work of these grades while retaining his more general control over the Intermediate and High schools.

CHAPTER II.

INSTRUCTION

Testing Results,—General

One purpose of instruction in the elementary grades is to give the children mastery of the fundamentals—spelling, reading, writing, and arithmetic. Fortunately such men as Ayres, Thorndike, Starch, and Courtis, and many others, have devised fairly well perfected objective tests for measuring the achievements of pupils in the common branches. These tests, moreover, have been standardized by application to thousands of pupils, the country over, so that it is now possible to tell approximately how much may be expected of the normal pupils of a given grade. The standing of each pupil, each class and the entire school system can be found and compared with similar items in other school systems.

In Grand Junction the Committee gave the Ayres spelling tests, the Starch silent reading tests, the Courtis arithmetic tests, and it scored the penmanship of the entire school system using the Ayres scale.

The next few pages contain an explanation of the tests as they were given and a tabulation of the results.

Spelling,—Explanation

Under the direction of Dr. Leonard P. Ayres of the Russell Sage Foundation a very long list of common words was given to each grade of over seventy school systems, with the purpose of finding out what words in the list were spelled correctly by 100 per cent of each grade, 95 per cent, 90 per cent and so on down the scale. In this way it was possible to derive lists that approximately all in a given grade could spell perfectly, or another list upon which they could make only 90 per cent or 85 per cent, etc.

The words chosen for the Grand Junction tests were those which approximately 73 per cent of each grade might be expected to spell correctly. In other words, if the grade average is about 73 per cent, the grade is up to standard.

The words of each grade list are given below. The same member of the committee gave the test in all rooms; conditions were identical and favorable.

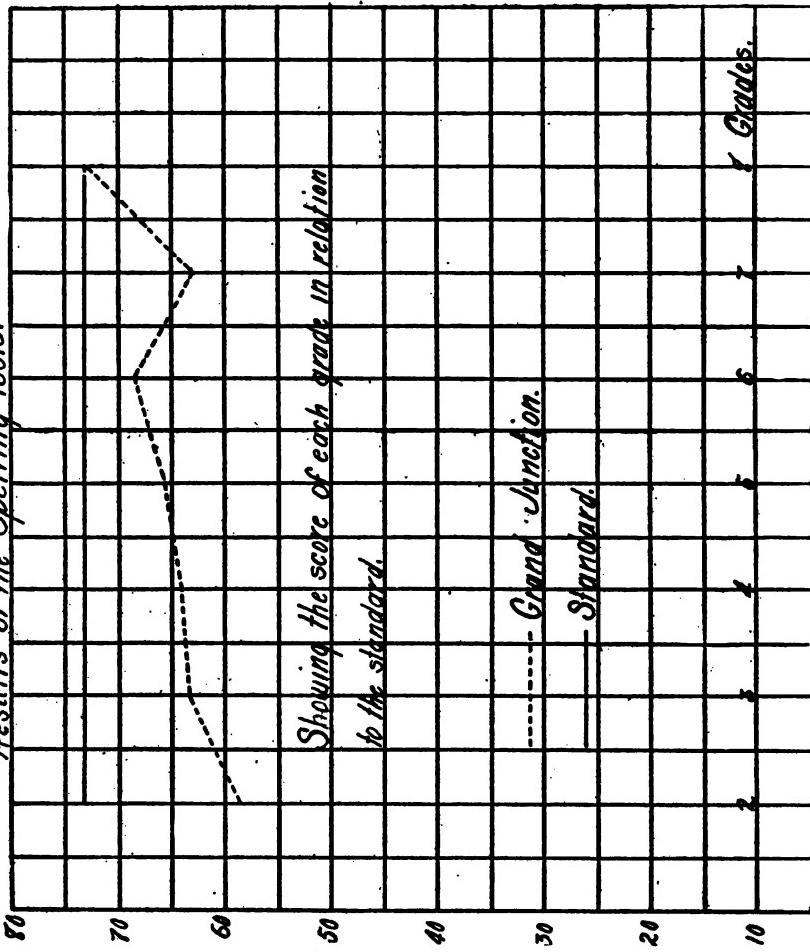
THE WORDS THAT WERE SPELLED

Second Grade	Third Grade	Fourth Grade	Fifth Grade	Sixth Grade	Seventh Grade	Eighth Grade
nine	catch	sight	often	meant	principal	7
face	black	afraid	stopped	earliest	73	59
miss	warm	uncle	motion	whether	60	60
ride	unless	rather	convict	distinguish	71	71
tree	clothing	comfort	region	consideration	63	63
stok	began	elect	firm	evidence	68.5	68.5
got	able	aboard	connection	experience	65.6	65.6
north	gone	jall	total	session	66	66
whit	suit	shed	mention	secretary	65	65
spent	track	retire	arrive	association	67	67
foot	water	refuse	occupy	organization	62	62
blow	dash	district	probably	foreign	68	68
block	fall	restrain	assist	emergency	75	75
spring	fight	royal	difference	expense	73	73
river	buy	objection	examination	responsible	57	57
plant	stop	final	particular	sincerely	70	70
cut	walk	engage	aftair	beginning	74	74
song	eran!	declare	course	application	athletic	
winter	soap	sometimes	neither	difficulty	extreme	
stone	proper	factory	local	seeing	practical	
		crowd	finally	develop	proceeded	
		further	circumstance	character	cordially	

SPELLING SCORES BY GRADES.

Grade	2	3	4	5	6	7	8
	—	—	—	—	—	—	—
	64	47	73	45	67	73	72
	44	63	66	61	68	66	60
	62	85	72	70	69	65	71
	55	70	49	53	64	63	63
Average	58.7	62.5	64	64	66	63	73

Results of the Spelling Tests.



Out of the seven grades taking the spelling test one reached the standard. The average, however, does not reveal anything. The excessive lack of uniformity among the pupils of every grade should be noted. In the second grade four pupils made 100 per cent; forty other pupils exceeded the standard; and all the rest fell below. In the third grade two pupils wrote a perfect test; fifty-six others exceeded the standard; but thirty-nine received 50 or below, and a large number of others made less than 70. Eight fifth graders spelled every word correctly, but fifty fell short of 50 per cent, and the rest of the class were unable to make up the deficiency. The sixth grade had only two perfect pupils; twenty-two that spelled only half the words or fewer; and thirty-seven others that did not attain above 70 per cent. Four seventh grade pupils made a perfect score, but sixty-seven spelled but half the words or less. Although the eighth grade had only three perfect papers, it attained the standard score with but fifty-three grades below the standard.

Penmanship,—Explanation

Beginning with the third grade all the pupils in the elementary schools were requested to write for five minutes, repeating the first four lines of "Mary had a little lamb." This familiar rhyme was chosen so that it would not be necessary for the pupils to puzzle over what they were writing. The specimens were taken without any coaching whatsoever.

The Scale

The Ayres scale was employed in scoring the papers. This scale consists of a chart containing twenty-four specimens of penmanship to which eight scores, from 20 to 90 per cent, have been assigned. There are three types of penmanship of each grade; for example, an almost vertical hand marked 30, a more slanting type marked 30, and a still more slanting type marked 30. The other seven ranks are composed of three types each in the same way.

These specimens have been chosen and ranked by the co-operation of many individuals scoring each specimen independently. Over 18,000 specimens were measured in developing the original scale, and they were taken from 40 different cities; so that the scale represents a consensus of opinion. It has been reprinted fifteen times and employed to measure the penmanship of many thousands of pupils. Thus it has become standardized and a fair basis of comparison.

The Use of the Scale

The method of using the scale is extremely simple. The examiner takes a specimen of the writing submitted by the pupil and slides it along the chart until he finds a specimen of corresponding kind on the chart. He then records the grade of the chart specimen as that of the pupil.

Scoring the Papers

The Grand Junction specimens were scored with great care. From five to ten individuals scored each specimen and recorded the grade without knowing what grade any other one of the scorers would give the same specimen. Later all grades were collected, and if in any case a disagreement of more than ten was discovered, the paper so marked was taken out and scored again by a new committee. For the most part there was close agreement in the estimates of the original scoring committees, but all disputed specimens received a new accounting.

The Standard

Due to causes which it is not possible to discuss here, there is a wide variation in the writing of pupils of the same grade. Some eighth grade pupils write no better than third graders. Occasionally a pupil in one of the lower grades will write as well as the best in grade eight. But in general there is a consistent progression in the improvement from grade to grade.

It is expected that pupils of the upper grades should attain an average of about 50 per cent by the Ayres scale.

Results of Test

Since Grand Junction has had a special supervisor of penmanship and has emphasized the subject in the lower grades, the test was applied to grades 3 to 8 inclusive. The following are the averages:

STANDING OF EACH GRADE IN PENMANSHIP

Grade	.....	3.....	29
Grade	.....	4.....	35
Grade	.....	5.....	43
Grade	.....	6.....	56
Grade	.....	7.....	55
Grade	.....	8.....	59
Average of entire school.....			44.5
Average of four upper grades.....			53.2

Reading,—Explanation

The Starch test for silent reading was employed in the six upper grades. This test consists of descriptive or narrative prose selections of graduated difficulty, a different selection for each grade. The selections have been chosen carefully and standardized by application to thousands of pupils. The first lines follow:

Grade III.—Little Abe hurried home as fast as his feet could carry him. Perhaps if he had worn stockings and shoes like yours he could have run faster. But, instead, he wore deerskin leggings and clumsy moccasins of bear skin that his mother had made for him.

Grade IV.—The red squirrel usually waked me in the dawn, running over the roof and up and down the sides of the house, as if sent out of the woods for this very purpose.

Grade IV.—One upon a time, there lived a very rich man, and a king besides, whose name was Midas; and he had a little daughter, whom nobody but myself ever heard of, and whose name I either never knew, or have entirely forgotten.

Grade VI.—In a secluded and mountainous part of Stiria there was in old times a valley of the most surprising and luxuriant fertility. It was surrounded on all sides by steep and rocky mountains, rising into peaks which were always covered with snow, and from which a number of torrents descended in constant cataracts.

Grade VII.—Captain John Hull was the mint-master of Massachusetts, and coined all the money that was made there. This was a new line of business, for in the earlier days of the colony the current coinage consisted of gold and silver money of England, Portugal, and Spain.

Grade VIII.—The years went on, and Ernest ceased to be a boy. He had grown to be a young man now. He attracted little notice from the other inhabitants of the valley; for they saw nothing remarkable in his way of life, save that, when the labor of the day was over he still loved to go apart and gaze and meditate upon the Great Stone Face.

Method

The selections, printed on one side of unfolded sheets, are placed face downward on the desks, and each pupil writes his name on his paper. At the signal the papers are turned printed side up, and exactly thirty seconds are allowed in which to read. Care is taken beforehand to make clear to the children that concentration is necessary because the time is so short. Exactly at the expiration of the time the pupils are told to stop reading and to write on the blank sheet as much of the story as possible.

Scoring

The papers are scored for speed and comprehension. Speed means the number of words read in one second, and comprehension the number of significant words used in the reproduction. In estimating this, only the words are counted that give the thought of the selection without deviation and repetition. The pupils are allowed ample time for the reproduction.

Results

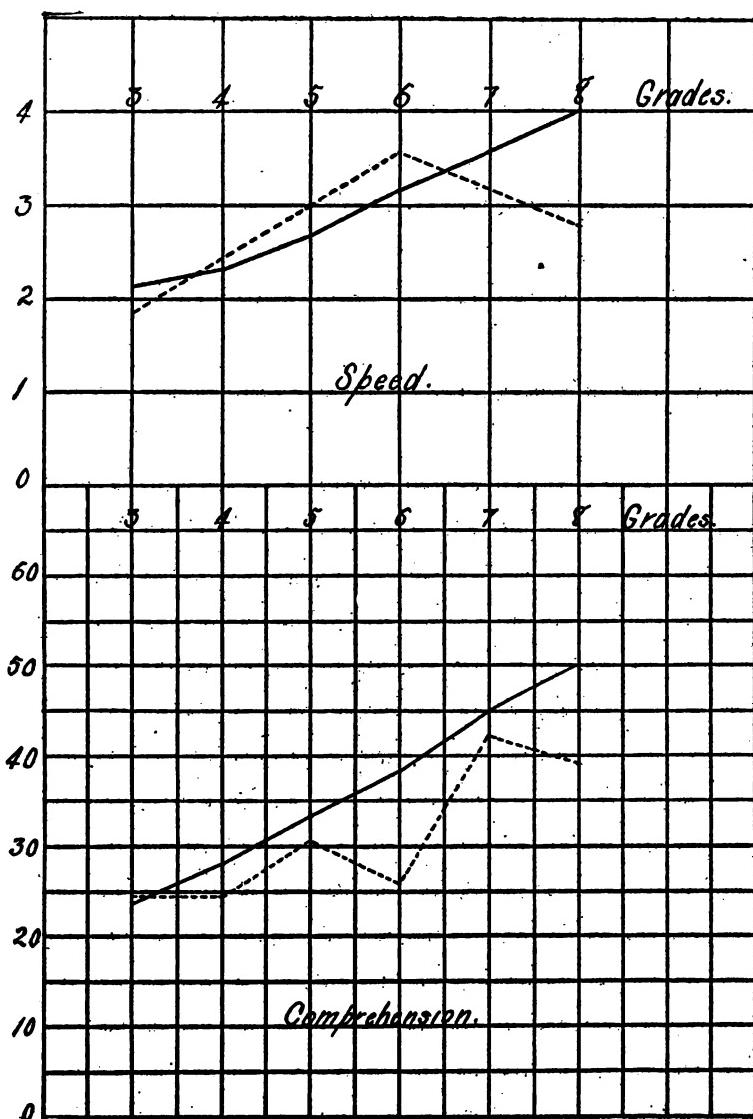
The results of the reading test are disappointing from the standpoint of the comparative rank of Grand Junction pupils in comprehension. The standings of the several grades show neither a consistent progression of attainment from grade to grade, nor are the scores attained as high as they should be.

It was obvious in giving this test, as all others, that children of the same grade, but different rooms, show a marked variation in the power to concentrate and respond effectively to any requirement. The table following suggests this lack of uniformity

in efficiency. Speed is marked "s" and comprehension "c" in the table. The variations in the third grades are especially notable, though there is one amazing case of a fourth grade that is out-classed by all others in the system:

Silent Reading Scores by Separate Grades.

3		4		5		6		7		8	
s	c	s	c	s	c	s	c	s	c	s	c
1.5	28	2.1	9.3	2.3	36	2.0	29	2.4	33	3.1	35
1.6	12	2.2	27	2.5	31	2.5	26	3.2	46	3.2	47
1.8	20	2.2	24	2.8	25	2.8	25	3.5	43	3.7	37
2.1	11	2.3	26	3.3	32	4.0	33	3.8	44		
2.1	23	2.8	24	3.6	32	4.3	19				
2.5	10	2.8	24	3.9	34	4.6	21				



----- Grand Junction.
— Standard

Figure showing the relation between silent reading scores made by Grand Junction and other places

Arithmetic,—Explanation

The Courtis Standard Arithmetic Tests, Series B, were given to the five upper grades. These tests consist of exercises in addition, subtraction, multiplication and division. They do not involve fractions. Specimen problems from the test papers are given below:

ADDITION.

339	799	952	937	489
276	584	397	274	877
777	125	525	836	482
361	647	669	323	645
757	699	386	485	761
398	624	974	357	598
269	512	458	925	352
136	146	702	819	431
322	109	397	468	367

SUBTRACTION.

102142649	91889637	87168558	78052979
70428369	78379474	28712470	53180508

MULTIPLICATION.

9237	4568	6845	3297	7239
27	85	63	49	36

DIVISION.

26)7306	74)66822	38)10640	95)88445
---------	----------	----------	----------

The same problems are given to all grades, the attainment depending upon the speed and accuracy with which the work is done, not upon a greater relative difficulty in the problems submitted to the different grades.

Methods

The problems are printed in folders, each operation on a separate page. These folders are distributed but not opened until the signal is given. Eight minutes each are allowed for addition and division, six for multiplication and four for subtraction. All necessary directions, including the advice that the pupils should work straight ahead as well as they can, are given before the signal so that there can be no misunderstanding and no interruption. As soon as the time is up for one operation, the children are to rest at attention until the signal is given to proceed with the next. It is felt that the conditions were all favorable to the best work of the pupils.

The Scoring

The papers of this test were all scored under the direction of the Committee and all computations were checked for accuracy. In considering the standards that should be used for

comparison the Committee decided upon the actual median of June scores made in various places throughout the country in 1915 — the general standard.

The Results

The tabulation which follows shows the number of examples attempted, the number right, and the percentage of accuracy for each grade. The general standard is given with all these for comparison. The graphs show the same results in a different manner.

A mere glance at the tabulation and graph show that Grand Junction falls below the general standard. This raises questions as to whether insufficient time is given to drilling in the fundamentals, as to the character of the course of study, the quality of the teaching, and the special problems or conditions peculiar to Grand Junction that may account for the shortcomings of the pupils in arithmetic. Some of these questions are considered in other connections in this report:

ADDITION

Grade	Attempts	Standard	Rights	Percentage of Accuracy	
				Grand Junction	Standard
4	4.3	5.9	1.6	3.2	54
5	5.2	6.3	2.1	3.6	57
6	5.6	8.4	2.8	5.4	64
7	6.2	9.2	3.4	6.3	68
8	7.4	10.2	4.1	7.1	70

SUBTRACTION

Grade	Attempts	Standard	Rights	Percentage of Accuracy	
				Grand Junction	Standard
4	5.7	6.2	3.4	3.5	58
5	6.5	7.8	3.2	5.6	72
6	7.8	9.2	4.9	7.3	80
7	9.1	10.7	7.3	8.9	82
8	10.6	12.3	8.4	10.3	84

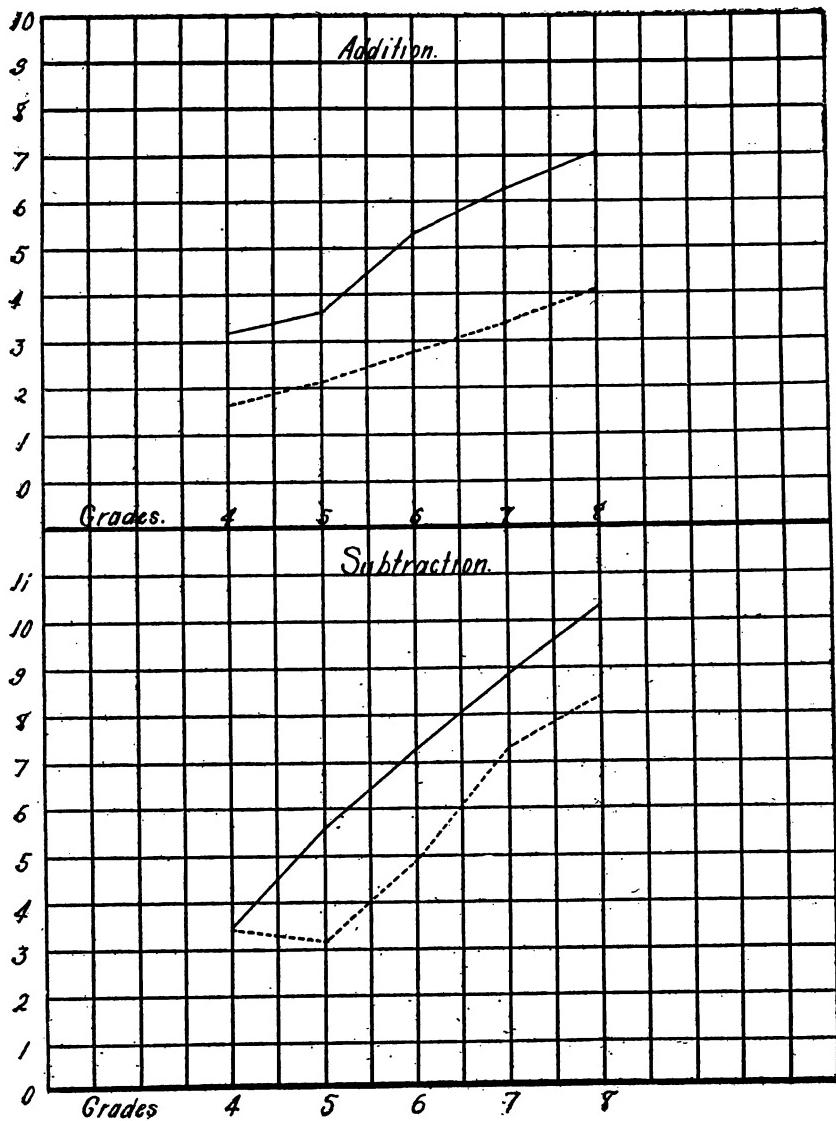
(32)

MULTIPLICATION

		Attempts	Rights	Standard	Percentage of Accuracy
	Grand Junction	32 32 32 32		57 66 74 76	57 66 74 76 80
Grade	4	4.3	5.0	3.5	4.0
	5	5.2	6.2	4.0	5.8
	6	5.1	7.9	5.8	7.6
	7	8.2	9.0	7.6	8.5
	8	9.5	10.7	8.5	

DIVISION

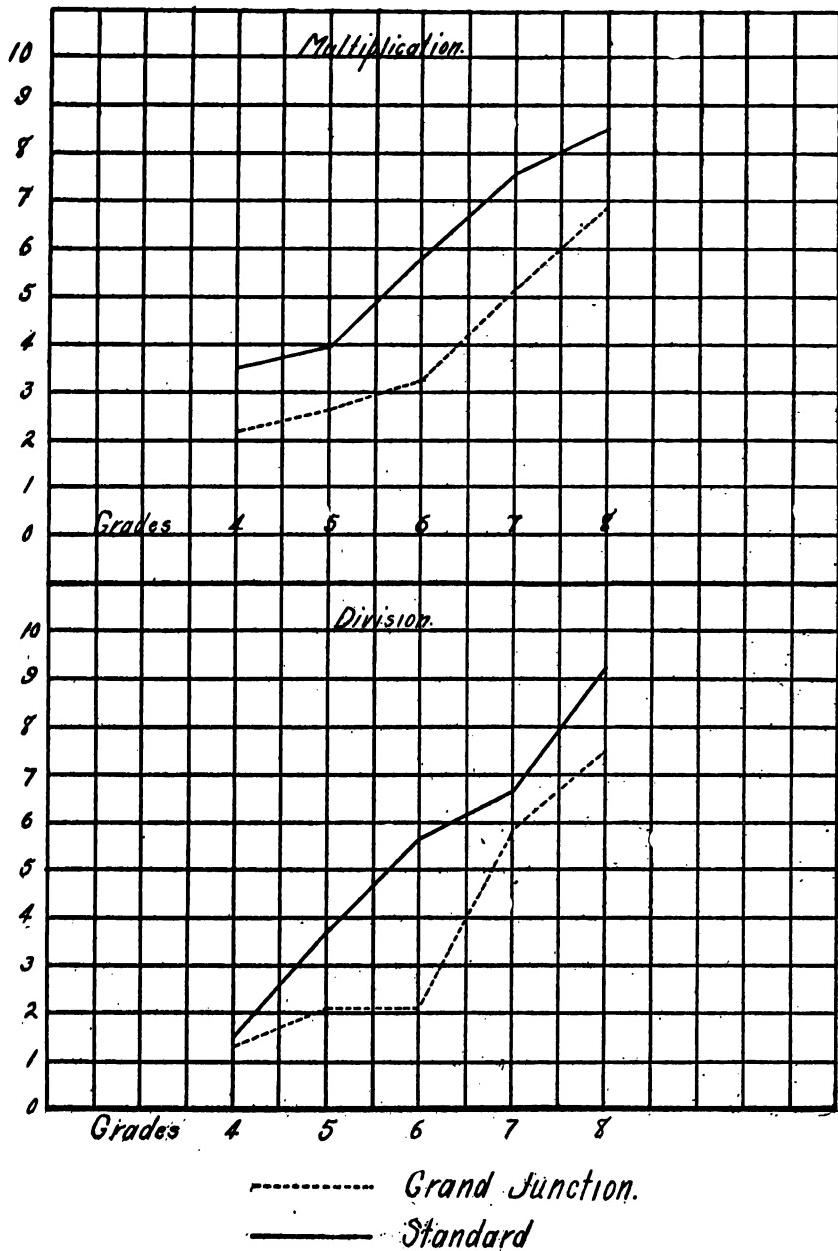
		Attempts	Rights	Standard	Percentage of Accuracy
	Grand Junction	32 32 32 32		41 64 61 82	41 64 61 82 88
Grade	4	3.2	3.6	1.5	3.7
	5	3.2	5.4	3.7	5.7
	3	3.4	7.1	5.7	6.7
	7	7.2	8.1	7.5	9.3
	3	8.6	10.6		



Results of Arithmetic Tests

Median number of correct answers, by grades, compared with standard scores

----- *Grand Junction.*
— *Standard*



The Curriculum,—Explanation

It is the plan of this portion of the report to discuss the curriculum in the face of the evidence afforded by the objective tests just described. But in Grand Junction, as everywhere, there are peculiar problems that demand a pause before any sweeping conclusions are drawn. For example, how much are late entrance and the inevitable complications that result therefrom to blame for Grand Junction's failure to score to standard? Whatever is said about the curriculum or the quality of teaching must certainly take account of the transient and irregular school population.

Of 482 new students entering the Grand Junction schools up to April 10 during the present school year, 441 were below the high school. Of the 441 grade children, 285 enrolled late as indicated by the following:

Grade	Kinder-garten	1	2	3	4	5	6	7	8
Not over one week late	12	43	5	6	10	6	9	2	1
1 week but not over 2 weeks late.....	6	5	-	3	2	-	3	-	-
2 weeks but not over 3 weeks late.....	3	3	-	1	1	1	-	2	-
3 weeks but not over 4 weeks late.....	1	1	3	1	1	-	1	-	1
4 weeks but not over 6 weeks late.....	2	2	2	1	5	1	1	1	1
6 weeks but not over 10 weeks late.....	7	11	6	10	7	3	2	2	4
Over ten weeks late	9	13	14	10	15	8	4	8	3
	—	—	—	—	—	—	—	—	—
	40	78	30	32	41	19	20	15	10

Time Allotment

It is possible to give only the most general idea of the amount of time allotted to each subject in each grade in Grand Junction. Each teacher is a law unto herself as to her time schedule, and she may modify her program of study and recitation to suit what she regards the special demands of her room, except in so far as she must meet the schedule of the special instructors. This is a splendid system, as long as the schools are blessed with excellent teachers and adequate supervision of the constructive kind.

It must be understood, then, that the following tabulation of the time allotment shows only an approximation. It is based on a comparison of the programs of the various teachers having the same grades.

The towns used for comparison with Grand Junction on this point are the selected Colorado towns from which returns had been received before this report went to the printer.

TIME ALLOTMENT IN MINUTES PER WEEK

Subject	First Grade G.J. Av.	Second Grade G.J. Av.	Third Grade G.J. Av.	Fourth Grade G.J. Av.	Fifth Grade G.J. Av.	Sixth Grade G.J. Av.	Seventh Grade G.J. Av.	Eighth Grade G.J. Av.
Reading	325	225	275	225	250	200	225	225
Writing	100	75	100	75	100	75	100	75
Arithmetic and Numbers	75	75	150	100	225	150	225	175
Spelling or Word Study	100	50	125	50	150	75	150	100
Language	100	100	75	125	150	100	175	125
Grammar	---	---	---	---	175	175	200	200
Opening Exercises	100	50	100	50	75	75	75	75
Music	100	75	100	75	100	75	100	75
Drawing	100	100	40	125	50	100	60	80
Manual Training	40	40	40	40	45	45	90	90
Physical Training	100	100	100	75	50	75	50	50
Plays and Games	100	150	100	150	100	150	100	125
Phonics	100	75	75	75	50	50	50	50
Geography	---	---	---	100	100	150	200	200
History	50	50	50	50	100	100	225	100
Civics	---	---	---	---	15	60	60	60
Physiology and Hygiene	---	---	---	50	30	---	20	100
Science	40	40	40	40	100	---	20	20
General Lessons	---	---	---	---	---	---	20	20
Cooking and Sewing	---	---	---	---	---	90	70	90

(3½ mo.)

A glance at the tabulation shows that Grand Junction gives more than the average time to Reading in the first four grades, but less than the average in the last three. To Writing she gives much more than the average allotment in all grades. A test of the Penmanship in these other schools would reveal the fact as to whether the larger apportionment for Grand Junction is worth while. Grand Junction gives more time to Numbers and Arithmetic. This comes as a surprise in the light of the Courtis tests. She is also more liberal with time for formal Spelling than most of the towns, and she shows a greater devotion to English Grammar. In most grades Grand Junction exceeds the average in Music. Other towns have a little the better of Grand Junction in time devoted to Calisthenics in the lower grades. Drill in Phonics is more persisted in by other places, and Geography and History are given on the full year plan rather than on a division of time within the year. The allotment for Hygiene seems to be more regular in other schools than in Grand Junction.

Making and Administering the Course

Grand Junction has not printed the course of study since 1910. Naturally the modifications that have been made since that time leave the old printed course a poor index of conditions as they are.

To supplement the earlier outline, therefore, the Superintendent and teachers co-operate each year in preparing a type-written outline which names the text-books and gives by pages or by topics such work as each grade is expected to cover during the year. There are no suggestions in the printed or typewritten outlines as to aims, principles, or methods. Teachers are permitted the utmost opportunity of expressing their initiative and individuality. If there is such a thing as a general policy controlling the purpose and methods of any division of the course, absolute reliance must be placed upon the supervising agencies of the school to see that such policy is made clear to the teachers and respected by them.

There is some evidence of a wasteful lack of co-operation among the first grade teachers. This is shown by the fact that pupils passing from different first grades into the same second grade room have difficulty because certain and different subjects and methods have been exaggerated in the various first grades. Beyond the second grade, independence in curriculum planning cannot work so obvious a hardship; nevertheless, there should, where all schools are facing the same problems, as in Grand Junction, be a better appreciation of the common needs, and this appreciation should find expression not merely through co-operation in planning the course of study at the beginning of the year, but also in administering it the year round.

One emphatic lesson to be drawn from the tests in the fundamentals is the fact that to belong to a certain grade may mean more or less, depending upon which division of the grade it is. Nor must it be assumed that the teacher in charge is entirely to blame for the condition. Unless she is good for nothing, she

may be a better follower than leader; in which case her most effective work would be brought out by frequent conferences between her and the other teachers of the grade, and by persistent constructive supervision. The more complex the problems of the school the greater is the necessity for a constant working together for the adjustment and re-adjustment of the course of study. If each teacher is left to the isolation of her own thinking, there will be no common purpose to lend vitality to the instruction.

Reading

The supply of readers and classics in the Grand Junction schools is abundant almost to the point of extravagance. In the midst of such generosity the pupils should get not only the technique but the habit of reading. In the silent reading test the failure of the pupils to equal the standard in thought getting was therefore unexpected. Among other things which account in part for the deficiency, is the failure to give sufficient time, consciously, to silent reading and to testing for results.

Spelling

The results of the spelling test again emphasize the futility of attempting to store up words for future use. Many teachers spoke of the "everyday" character of the words in the test, but they feared that the children might not spell them because recent lessons had not contained them. The Grand Junction course is trying to give too extensive a vocabulary, and it is giving so many words in a lesson that not much more than three reviews are possible. No spelling becomes a habit with so little practice as this. In some grades the spelling lessons are assigned in the old indiscriminate way. In others the difficulties are studied carefully in the assignment.

Arithmetic

The school furnishes two of the best texts available in the subject. Many teachers are developing real power in reasoning, but there is a general weakness in the fundamentals. Until this is removed by frequent drills for speed and accuracy, it will be impossible for the schools to take high rank in arithmetic.

Grammar and Language

In accord with the reaction that is becoming general throughout the country, Grand Junction has adopted a book that places at least four years of technical grammar in the grades. This may be no worse than the hodge-podge of material which formerly passed as "language," but it involves a needless waste of time unless modifications are made in the use of the text. Grade children should have the privilege of far more oral and written composition than they are getting.

Geography

The fact that many teachers are annoyed by the texts that they use in geography, emphasizes the desirability of emancipating this subject from text-books and making it a great socializing factor in the common schools. The study of the community, commerce, internationalism, current events, public health, etc., through geography or in correlation with it, makes this subject worthy of the best caliber in course making. Every school system should work out a consistent and attractive problem course in Geography, so rich that it would be worthy of universal use by the teachers of the system. It is too big a subject to limit to one text book and too important to entrust entirely to the individual initiative of the teachers. In Grand Junction the possibilities of Geography are not being realized. The geographical readers and the text should be supplemented by physiographical laboratory work and industrial, commercial, and civic exhibits. Such exhibit material could be put into circulation throughout the grades.

Civics

Some teachers are meeting the great problem of civic instruction in their own way, but there seems to be no authorized and well worked-out plan of teaching community civics and government. This is another subject that is big enough for the best brains of the teaching corps. It should probably be worked out in correlation with other subjects, but it requires conscious planning.

Science

"Science" is the name given to nature study in the grades. The plan for it consists of short categories of miscellaneous topics for each grade. There is little continuity or logic in the arrangement of the course for any grade. Yet the subject might include important topics, rationally put together.

Hygiene

There is danger that this subject become either too incidental or too perfunctory in the lower grades. The books in use are good, but unless this work consists of more than an occasional reading of a topic with little comment and no laboratory work, it cannot mean all that it should. The regular courses in physiology in the 7th and 8th grades are good, but many children do not reach those grades.

Music

The definite and regular teaching of vocal music in all the grades is one of the excellent features of the course. The pupils are taught to sing for the pleasure of it, as children should. Even the upper grade boys get the theory and will be ready to sing again when their voices settle.

Drawing

Drawing is left entirely to the room teachers. Some of them have developed excellent plans, and have on exhibit considerable work that proves the value of their theory.

Penmanship

Penmanship is as well taught as in most schools. It is as thoroughly supervised as the limited time of the director has made possible. But four-fifths of the work of teaching penmanship must be done by the room teachers, and only such teachers as take, retain, and practice the instructions of the supervisor are likely to get excellent results. All through the school there should be more insistence upon good penmanship in all written work. Practicing penmanship is futile unless there is some transfer of the gain thus made, to all written work. It is conceivable, too, that some pupils are allowed to waste time by practicing when they do not need to. The plan of a "penmanship hospital" to which all pupils are remanded who begin to show carelessness might be both more salutary and economical.

Manual Training

Manual training in the lower grades consists of the paper folding, weaving, and other hand work such as any normal graduate should be able to give. Beginning with the fifth grade and extending on up, the boys have had manual training (wood work) and the girls domestic science and art. The equipment and accommodations for the boys' work are inadequate for a town like Grand Junction. Conditions are more favorable for the household arts.

Summary

No attempt has been made to give exhaustive comment on all aspects of the curriculum, and lack of space forbids sufficient constructive suggestion, but the most urgent demands are for co-operation in curriculum making; the better standardization of the courses in geography, nature study, community civics, and hygiene; specific attention to silent reading; more drill in spelling and placed on fewer words; more drill for speed and accuracy in the fundamentals of arithmetic—perhaps through time devoted to mental arithmetic; modification of the grammar and language course to provide for more oral and written composition—four years is too much technical grammar, even though part of it is diluted; a reduction of the time given by some pupils to drill on penmanship and insistence upon careful writing in all daily work. Above all things the careful and continuous study of all aspects of the curriculum, by all who are concerned in administering it.

The High School Course of Study

The present course of study in the high school is fairly broad, but lacking in balance, according to the usual program of studies in the high school. The principle of continuity is violated by placing two units of Science in the third year and none in the second. When four units are offered in one field, as Science or History, they should usually follow each other consecutively through the four years. One student, slightly irregular to be sure, had a daily schedule of three classes in Science and one in English. The arrangement of the subjects might also be improved in several other respects to conform more closely to current practice.

It is Recommended

- (1) That the work in History be reorganized and strengthened by placing Ancient History in the first year, Medieval and Modern or English, but preferably Medieval and Modern, in the second or third, and American History and Civics in the fourth.
- (2) That the course in Science consist of General Science (or General Science and Physiography), Biology, Physics, and Chemistry. The proper sequence of the last two is by no means agreed upon.
- (3) That German be limited to the third and fourth years with the object of eliminating classes containing students of markedly different amounts of training.
- (4) That the home-reading list for English be enlarged to give the student larger range of selection. The number of books read is sufficient except in the fourth year.
- (5) That the attention directed to oral composition be increased materially. Book reports, now given privately to the teacher, might be made the basis of valuable oral work.
- (6) That a small amount of commercial work be permitted in the second year.
- (7) That Domestic Science be opened to the third and possibly the second year, even though this should necessitate dropping the subject to two times per week in the fourth year.
- (8) That no student be allowed to gain over one-fourth unit per year in Physical Training, and that the basis of credit in this subject be reduced to the same as that in laboratory work of all kinds.

The requirements for graduation are normal in amount, but they might well be made less specific. The concensus of practice is not to require Chemistry for graduation. And Physics, almost universally required a few years ago, is rapidly losing its dominant position. Until the latter shall have been largely reorganized, the advisability of requiring it from girls is seriously doubted by this Committee.

The amount of work prescribed by the printed or type-written outlines of the course of study is standard and is covered

during the year. In Physics the laboratory work done is small in extent because of the limited space. In second-year German classes made up of upper-, and lower-grade pupils have lowered the standard. Biology is hampered by a lack of apparatus of the simpler sort.

The Quality of Teaching

The Committee saw too little teaching during its ten days in the Grand Junction schools. It was convinced, however, from the response given to the objective tests by certain of the rooms that Grand Junction has many excellent teachers. Opinions not substantiated by facts are worthless; therefore, it was gratifying to the Committee to discover that the pupils of those whom they had guessed were good teachers, made the highest scores in the tests. Alertness, power of concentration and efficiency of performance tell the tale. When these qualities are present in the pupils, the teacher is usually to be given the credit.

Discipline

In general the discipline is excellent. The pupils are courteous and they seem serious-minded about their work. In marked contrast, therefore, to the general condition are a few cases of poor discipline.

The Study Period

Those teachers having but one grade find time for supervision of study. The good teachers are making the most of this. They secure just as much purposeful mental activity during the study period as in the formal recitation. Only occasionally was the teacher failing to secure excellent results from this exercise.

Conclusions

It is clear that the teachers of Grand Junction might help one another if they were to exchange visits for observation. These visits should be made at the suggestion of the Superintendent and for the specific purpose of helping the teacher improve in some particular. The condition of the curriculum, demanding for good results, as it does, that the teacher be a master educator, throws an unusual responsibility upon each teacher. Only the superior ones rise fully to the situation.

A cooperative study of the problems of the school, using the various classes for laboratory material would benefit the teachers more than the formal study of some text on education. Directed and systematic study of their own problems and the frequent application of objective tests are suggested as the best means of improving the quality of teaching.

Preparation and Training of Teachers

The requirements named below are approximately the standard for teachers in schools of recognized efficiency throughout the country. The summary following will show the status of Grand Junction with reference to most of the items:

1. Sound health. It is feared that Grand Junction has not always exercised the precaution of exacting from the teachers a certificate of health.
2. Good mental balance and other less tangible qualities that, combined, make up personality. Of these the ones employing the teachers must use their personal judgment.
3. Thorough training in the elementary and high schools.
4. For elementary teachers, at least two years spent in professional preparation at a reputable normal school or in the educational department of a university or college.
5. For high-school teachers graduation from a standard college or university, fifteen or twenty hours in pedagogy, and special emphasis upon the subjects which they hope to teach in the high schools. A year of post-graduate work in pedagogy and the special subjects to be taught is desirable.
6. A reasonable amount of study while in service. Correspondence and group-study plans are useful in this connection.
7. Experience after adequate preparation and under careful supervision adds to a teacher's ability; but if had without adequate previous preparation and without proper supervision, experience may be a handicap.
8. The opportunity to travel, at home and abroad, should increase the teacher's power.

In scholastic preparation and teaching experience the teachers of Grand Junction are nearly up to standard, as is shown by the following tabulation:

TRAINING OF TEACHERS.

Points Considered	Elemen-	High	Spe-
	tary	School	cial
Total number of teachers reporting	38	12	2
Number of Grand Junction High School graduates	6	1	--
Number of graduates from other high schools	28	11	1
Normal School graduates—two or more years in residence	28	3	1
Normal attendance—less than two years in residence	7	1	--
Number having 10 or more hours credit for non-residence courses	3	2	--
University or college attendance of less than 144 weeks	6	1	--
University or college graduates—111 weeks or more in residence	2	11	1
University graduates with 10 or more hours of pedagogical work	2	9	1

TRAINING OF TEACHERS -- Continued

Points Considered	Elemen- tar y	High School	Spe- cial
Number of high school teachers having 15 to 20 hours' credit in each sub- ject that they are now teaching.....	2	--	
Number having credit for University ex- tension courses	5	2	1
Number having experience, two or more years, before coming to Grand Junction	35	41	1
Less than two years	3	1	1
Number whose tenure in Grand Junc- tion has been two years or more...32	11		1
Number who have traveled extensively at home.....29	7		1
Abroad	3	--	--

CHAPTER III.

FINANCIAL SUPPORT

Sources of Revenue

Aside from unimportant items, such as rebates on taxes, etc., that sometimes do not represent real income, the support of the schools of Grand Junction is derived from three principal sources: county and state apportionment of school money; special tax in the district itself; income from books and tuition. The special tax in the district on account of schools is divided between tax for school purposes and tax for interest on and redemption of school bonds. The relation of these items to each other is shown below for two years, the one last available and 1910-11.

Revenue from	1910-1911	1914-1915
State and County Apportionment.....	\$10,855.68	\$11,785.40
Special Tax for School Purposes.....	55,097.51	62,615.12
Special Tax on Account of Bonds.....	9,973.25	6,878.09
"All other sources" (mainly Books and Tuition)	1,663.83	

"Books and Tuition" was reported in 1909-1910 at \$2,957.32; but during the next two years the amount received from these sources was put with the "Special school fund" and not reported separately. In 1912-1913 it appears in the annual report as "All other sources," and amounts to \$1,878.77. Income from tuition has decreased greatly in recent years because of the establishment and growth of neighboring high schools.

Income from the county and state has been growing very slowly. However, the *need* of a community for education, as gauged by the number of children, and the *financial ability* of that community to pay for education, are often altogether out of relation. Certain districts therefore suffer both educationally and financially because the main burden of supporting the schools is local. But our population is very mobile. Hence the education of the children of Grand Junction is of vital concern to all Mesa County, of large concern to the whole state, and of no small significance to the whole nation. As this fact gains recognition over the country, the burden of education is being equalized by increasing the proportion of revenues raised in county, state, and nation, and decreasing that raised by the locality. People in Grand Valley can feel the merits of this principle very strongly under existing economic conditions.

Indebtedness

More or less heavy indebtedness appears to accompany all public enterprises. In its day of rapid growth, this school district became bonded to a considerable extent. For the past five

卷之三

The Last Stage

The effects of the change in valuation may be measured in different ways. One method is to compare the rate of tax levied and the amount of tax raised. Taxes for all purposes, however, are paid at the same rate. The taxpayer feels the weight and sometimes protests, but it is well over careful to learn what is responsible for his dissatisfaction. Table No. 2 gives the tax for local schools and for city, the assessed valuation of school district (the latter besides the former), and rates of revenue levied in this district for various periods in the five years past.

The change in valuation and rates of taxation many years ago marks the passage of the state tax system to full value. When valuation was increased over 100 per cent, the rate naturally was decreased to less than a third. Tax county and state are not given, since they are not self-

TABLE No. 6.

Showing the Change in Taxation for Five Different Purposes during the years 1912-16.

Mill rate for	Levy of 1911, paid in 1912					Increase in four years
	Levy of 1912, paid in 1913	Levy of 1913, paid in 1914	Levy of 1914, paid in 1915	Levy of 1915, paid in 1916		
City	27.0	26.5	8.0	8.0	8.0	---
School District No. 1	29.5	29.6	7.9	8.12	8.61	---
Assessed Valuation of						
City	\$1,845,450.00	\$1,855,150.00	\$7,357,620.00	\$6,916,794.00	\$6,385,698.00	---
School District No. 1	2,284,291.00	2,325,191.00	8,181,170.00	8,379,586.00	8,250,659.00	---
Revenue Levied for						
City General	49,815.59	49,161.47	58,860.96	55,334.35	54,605.58	4,789.99
City Special	4,481.06	15,946.42	32,822.38	40,286.36	44,000.00	36,518.95
County	42,425.51	53,381.51	45,662.08	41,443.63	41,546.08	* 889.43
State	7,564.59	9,428.65	11,415.52	11,647.58	17,345.28	9,780.69
School District No. 1	67,386.58	68,885.65	69,371.24	68,044.99	71,415.66	3,729.08
All purposes	\$171,683.32	<u>\$196,713.70</u>	<u>\$218,132.48</u>	<u>\$216,433.80</u>	<u>\$225,612.60</u>	<u>\$53,929.28</u>
*Decrease,						

years its bonded indebtedness has been \$113,500, until a slight reduction was made the past winter. The rate of interest is 5 per cent, which is as low as can be expected. The legal bond limit of the district is approximately \$288,950. This does not in itself indicate a serious condition. The bonded indebtedness is not so large in relation to assessed valuation as in Trinidad or Greeley, but it is larger than in Boulder, Canon City, Fort Collins, Leadville, Longmont, or Montrose. The city government has been for some time practically out of debt until a recent issue of a few thousand dollars of bonds to avoid the registration of warrants. The great increase of indebtedness in this community during the past five years has been in the form of water bonds, which leaped from \$137,000 to \$580,000, and improvement bonds upon sidewalk, paving and sewer districts in the city, which have increased during the same period from \$6,500 to \$190,650.

In many places poor business policy on the part of the boards and lack of the stamina to make a sufficient levy have thrown the schools behind financially. Warrants are issued, but the treasury is empty. These warrants are registered, thus constituting a second form of interest-bearing indebtedness. The rate is 6 per cent, but the face is often "shaved" by the banks. The discount then is almost always made up to the person receiving the warrant. It would have been far better to issue bonds at 5 per cent than to have many outstanding warrants bearing 6 per cent, plus discount. No warrants are now outstanding in this district. For the last five years the schools have been operating most of the time on a cash basis. The average monthly balance to the credit of the district in the hands of the County Treasurer for the year 1915 was \$7,273.55. One can readily figure the loss to the district due to the refusal of the banks to pay any interest on this amount, but no other arrangement seems possible. The County Treasurer is free of criticism.

The Tax Rate

The efforts of the community to support its schools may be measured in different ways, but perhaps none is more fair than the rate of tax levied and the amount of money raised. Taxes for all purposes, however, are paid at one time. The taxpayer feels the weight and sometimes protests, but he is not often careful to learn what is responsible for his discomfort. Table No. 6 gives the tax rates for local schools and for city, the assessed valuation of city and school district (the latter includes the former), and the amounts of revenue levied in this district for various purposes for five years past. The change in valuation and rates three years ago marks the passage of the state tax system to assessment at full value. When valuation was increased over three times, the rate naturally was decreased to less than a third. Rates for county and state are not given, since they are not self-imposed.

TABLE No. 6.

Showing the Change in Taxation for Five Different Purposes during the years 1912-16

MILL rate for 1913, paid in 1912	Levy of 1914, paid in 1913	Levy of 1915, paid in 1914	Levy of 1916, paid in 1915	Increase in four Years
City -	27.0	8.0	8.0	...
School District No. 1	29.5	7.9	8.12	8.61
Assessed Valuation of City -	\$1,845,150.00			
School District No. 1	2,284,291.00			
Revenue Levied for				
City General	49,815.59	49,161.47	55,334.35	54,605.58
City Special	4,481.05	15,946.42	32,852.38	41,000.00
County	42,435.51	53,351.51	45,662.08	41,546.08
State	7,564.59	9,428.65	11,445.52	* 889.43
School District No. 1	67,386.58	68,825.65	69,571.24	17,345.38
All purposes	\$174,683.92			71,715.66
*Decrease,				3,752.06
				\$53,929.38
				\$225,612.60
				\$216,433.90
				\$218,152.48
				\$196,713.70

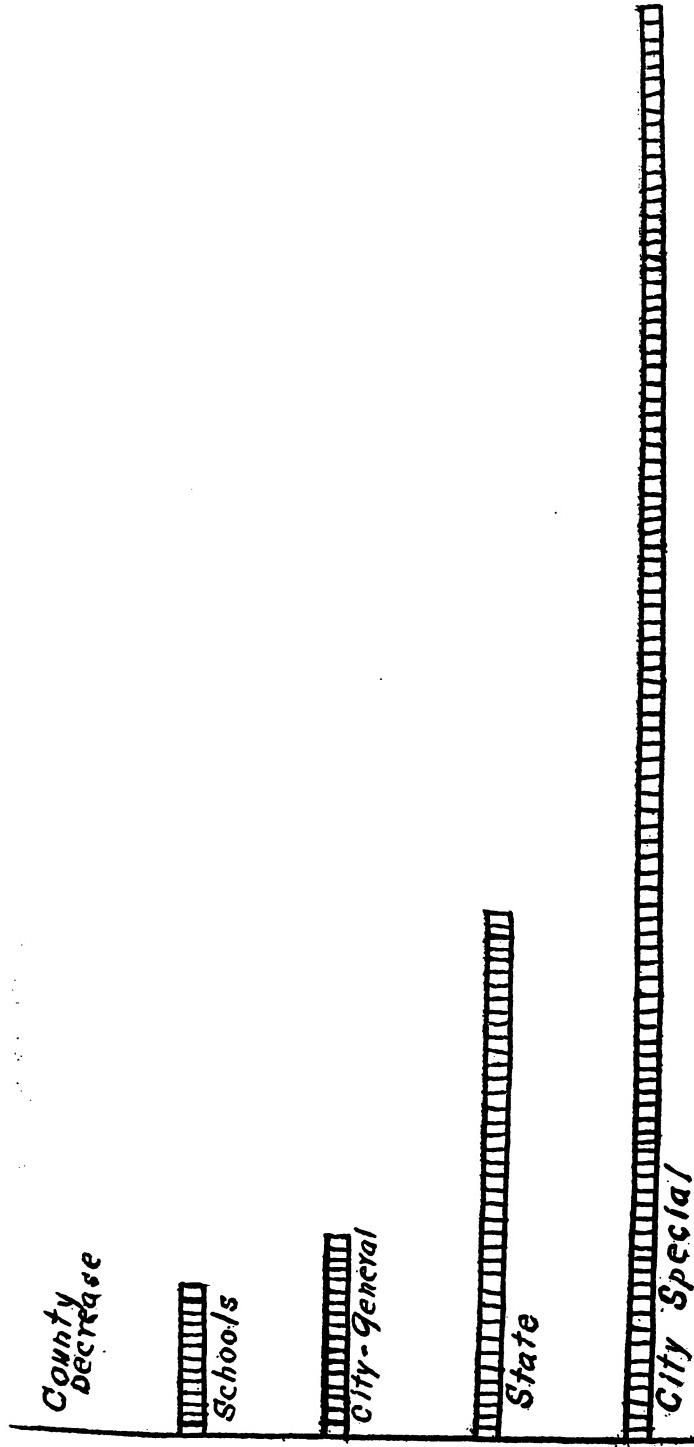
The tax rate for schools has grown steadily but slowly, due partly to the decrease in assessed valuation for the district. The rate for the city has changed but little.

The Cause of Increase

The tax rate in mills does not cover one most important item, viz., the tax for special improvement districts in the city. This can appear only from an examination of the revenue levied, which is reported by the County Treasurer to be nearly identical with the amount raised. Under an apparent decrease of both population and valuation, the people of this district will pay \$53,929.28 more tax in 1916 than in 1912. In the face of most distressing economic pressure, the community has lifted the taxes enormously. For what? The last column of Table No. 6 shows. Next after the county administration, the schools have been least responsible for this increase. The people have voted upon themselves over \$36,000 annual increase for particular improvements within the city. (See plate, page 49.)

111
111

WISCONSIN STATE TAXES



Showing the Relative Increase in Taxes for five different purposes from 1912 to 1916.

Comparative Tax Rates

To know what Grand Junction pays for its schools does not enable one to decide whether those expenses are in all respects reasonable. Comparisons with the practice of other properly selected school systems over the state will warrant a judgment.

TABLE NO. 7.
Showing the Levy in Mills for Schools and for City Purposes
in Sixteen Cities.

For Local Schools.	Mills	For City Purposes.	Mills
Rocky Ford	5.85	Loveland	5.25
Leadville	6.30	Salida	5.30
Fort Collins	7.00	Greeley	6.00
Longmont	7.20	Longmont	6.00
Colorado City.....	7.25	Durango	6.70
Fort Morgan	7.40	Boulder	7.50
Loveland	7.50	Fort Collins	7.50
Boulder	7.75	Fort Morgan	7.50
Delta	8.00	Grand Junction	8.00
Durango	8.50	La Junta	8.00
Salida	8.60	Delta	8.50
Grand Junction	8.81	Canon City	9.00
La Junta	8.80	Colorado City	10.00
Canon City	9.50	Trinidad	10.00
Greeley	9.60	Rocky Ford	10.50
Trinidad	10.30	Leadville	23.50

Table No. 7 shows the rate in sixteen Colorado cities for general city purposes and for the schools of the district in which the city is located. According to this table Grand Junction is paying a city rate that may be termed average, and a rate for schools that is somewhat above the average.

Relation of School Taxes to Other Taxes

But if money be scarce or children plentiful, some cities must on account of local conditions pay a higher rate of tax than others to maintain equal standards in their educational systems. A good second test is the relative effort put forth by the community for its schools and for other interests. Some cities regard schools as of more importance than pavements and sidewalks; others take the opposite view. Table No. 8 is derived from Table No. 7 and shows the ratio of the rate for schools to the rate for general purposes.

TABLE NO. 8.
Showing the Ratio of Tax Rate for Schools to Tax Rate for
City Purposes.

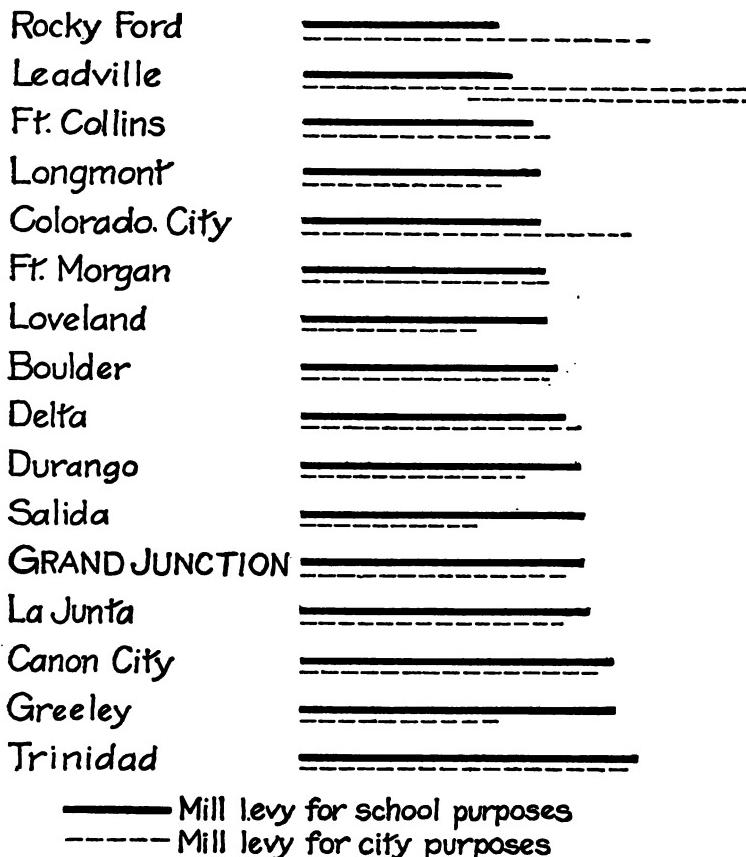
Leadville .....	.27
Rocky Ford .....	.56
Colorado City .....	.725
Fort Collins .....	.93
Delta .....	.94
Fort Morgan .....	.99
Trinidad	1.03
Boulder	1.03

(51)

TABLE NO. 8—Continued.
Showing the Ratio of Tax Rate for Schools to Tax Rate for
City Purposes.

Canon City	1.06
Grand Junction	1.08
La Junta	1.10
Longmont	1.20
Durango	1.27
Loveland	1.43
Greeley	1.60
Salida	1.62

It must be remembered that Table No. 8 does not reckon the taxes paid in Grand Junction and many other places for special improvements. Were this item figured in, the ratio for Grand Junction would be .61 instead of 1.08. Table No. 8 reveals Grand Junction as standing slightly above the average in the stress it places on schools. (See plate below.)



Showing the Rank of Grand Junction in amount of Tax Levied for Schools and
the Relative Amount of Tax levied for School and City
Purposes in Sixteen Cities.

Where Does the Money Go?

Still it is conceivable that school population may be so large in proportion to taxable property that the rate of tax may be fairly high and increasing, that it may be large as measured by the tax for non-educational purposes, and yet be insufficient to maintain satisfactory schools. Before one reaches any final conclusion as to reasonableness or economy, the expenditures for schools must be studied. Table No. 9 shows the outlay for schools in this district for the last ten years.

TABLE NO. 9.
Showing School Expenditures for Seven School Years.

YEAR	Salaries of Teachers, Principals, and Super-intendent	Fuel, Insurance, and all Current Expenses	Total for Operation (Salaries plus Current Expenses)	Sites, Buildings, Furniture & Permanent Improvements		Interest on Bonds and Loans, Payments of Bonds, & all other Disbursements	Total Expenditures for the Year
				Bonds	Payments		
1904-5	\$24,066.00	\$ 7,707.10	\$ 31,734.10	\$ 4,235.00	\$ 7,822.68	\$ 43,920.78	
1905-10	45,009.91	22,327.43	67,337.34	26,445.78	10,917.81	104,700.93	
1910-11	47,039.00	20,397.74	67,436.74	15,962.09	7,324.41	90,723.24	
1911-12	48,000.00	20,169.50	68,139.50	10,956.65	12,017.61	91,143.76	
1912-13	50,000.00	15,264.22	65,264.22	7,004.89	6,294.98	78,564.09	
1913-14	50,809.82	15,353.00	66,162.82	4,700.53	9,488.88	80,012.23	
1914-15	50,627.12	16,301.80	66,928.92	2,351.53	14,571.57	83,852.02	

The considerable building operations of several years ago, necessitated by the steadily increasing attendance, had much to do with causing total expenditures to reach their highest point in 1909-10. Since then the total cost (see last column of Table No. 9) has slipped back about 20 per cent. The expense for sites, buildings and other permanent improvements, has almost ceased; that for interest on bonds and some other small items is a fixed

expense and can not be reduced, since it grows out of obligations already assumed by the district. Payment of bonds, however, can be deferred by reissuance.

The one item that can not be eliminated without closing the schools or even considerably reduced without changing in a marked way their organization and efficiency, is the cost of operation. Table No. 9 shows that the disbursements for salaries have grown somewhat since 1909-10, but current expenses have decreased an equal amount. Consequently, the total for operation has remained almost stationary since 1909-10, though before that time it increased very rapidly.

Why Has the Cost Grown?

The inquiry of the taxpayers is: *What is the justification for the increase in cost of operation from 1904-5 to 1914-15? Does it mean waste, or does it stand for better educational conditions?* The data of Table No. 10 answer this question in part.

TABLE NO. 10
Showing the Relation of Attendance to Teaching Force and Cost of Operation

YEAR	Enrollment for Year	Annual Average At-tendance	Largest Force	Teaching at One Time(1)	Enrollment per Teacher	Average At-tendance per Teacher	Cost of Opera-tion per Pupil in Av-erage At-tendance
1904-05	1670	1239	36	46	34		\$25.64
1909-10	2100	1608	59	36	27		41.88
1910-11	2107	1568	59	36	27		43.01
1911-12	2025	1575	59	34	27		43.28
1912-13	2123	1569	59	37	27		41.60
1913-14	2019	1590	59	34	27		41.61
1914-15	1985	1585	60	33	26		42.15

The important conclusions to be drawn from this table are that

- (1) The cost per pupil increased about 60 per cent from 1905 to 1910, but has varied little since 1910.
 - (2) The enrollment and attendance increased 25-30 per cent from 1905 to 1910, but have stood practically at a level since 1910.
 - (3) The teaching force grew from 36 to 59 from 1905 to 1910, but has not been further increased.
 - (4) The number of pupils per teacher was forced down materially up to 1910. Since then it has scarcely changed. Unquestionably a teacher can with 26 pupils do work much superior to what she can do with 34.
1. The data printed here have been taken from the office of the Board of Education and from compilations furnished by the County Treasurer. The number of teachers for any year is of course the greatest number working at any one time. The reader will note that the number of teachers in 1904-5 was not 28, as a recent report indicated. Thirty-six names appear on the annual report of the Secretary to the County Superintendent.

In short, the net result of the ten years is a much larger cost per pupil because of the increase in the number of teachers in proportion to attendance, and also because of the increase of salaries, as will appear subsequently.

Are the Schools Too Costly?

To determine the wisdom of returning to the conditions of ten years ago, we must decide whether the cost per pupil in Grand Junction is now unreasonably high, whether the number of teachers is excessive, and whether their salaries are too high. The first two questions are answered by Table No. 11.

TABLE NO. 11.
Showing the Average Cost per Pupil and the Average Attendance per Teacher in Nineteen Schools. (1)

	Cost of operation per pupil in aver- age attendance in 1914-15	Average attend- ance per teacher in 1914-15	
Loveland	\$32.48	Salida	29.9
Salida	36.32	Loveland	28.2
Montrose	36.75	Longmont	27.5
Longmont	36.89	Rocky Ford	27.2
Delta	39.64	Greeley	26.8
Fort Collins	40.64	Fort Collins	26.7
Rocky Ford	41.26	Trinidad	26.5
Grand Junction	42.23	Grand Junction	26.4
Walsenburg	44.03	Boulder	26.0
Boulder	45.46	Montrose	25.9
Leadville	46.35	Leadville	25.3
Fort Morgan	46.48	Glenwood Springs	24.6
Trinidad	46.51	Delta	24.3
Greeley	47.15	Cripple Creek	23.8
La Junta	48.58	Fort Morgan	23.6
Glenwood Springs	48.67	La Junta	22.5
Colorado City	52.98	Walsenburg	22.5
Cripple Creek	57.09	Colorado City	21.7
Canon City	57.35	Canon City	19.7

According to this table, of 19 comparable towns eleven had a greater cost per pupil in 1914-15 than Grand Junction, and seven had a smaller cost.

Are Teachers Too Numerous?

Of these same 19 towns seven only had more crowded schools than did Grand Junction. If the teaching force were reduced until the basis of 1904-5 (34 pupils per teacher), were restored, this district would be in a class by itself. The true basis of comparison in all these matters is contemporary conditions in other similar schools, and not former conditions in Grand Junction.

1. Some towns given in this table have county high schools, but in all cases the results are based on grades and high school taken together.

The Salary Question

The proposal to reduce salaries has been made so insistently that it demands more detailed examination. The salary question has many sides. Some teachers may be paid too high, others too low, whereas the average may be fair. In Table No. 12 is given the standing of Grand Junction as to the salaries paid the Superintendent and the High School Principal.

TABLE NO. 12.

Showing the Salaries of Colorado Superintendents and High-School Principals, 1915-16.

	Superintendent Annual Salary	No. of As- sistants Teachers	High-School Principal Annual Salary	Average Daily Attendance
Rocky Ford	\$1700	37	Montrose	(Supt. acts.)
Delta	1700	35	Loveland	\$1125 243
Colorado City	1700	28	Glenwood Springs	1125 103
Salida	1800	27	Fort Morgan	1200 190
Glenwood Springs	1800	17	Salida	1200 161
Loveland	1900	47	Colorado City	1200 89
Longmont	2000	45	Lamar	1215 176
Leadville	2000	44	La Junta	1400 219
Lamar	2000	26	Delta	1400 199
Walsenburg	2100	23	Rocky Ford	1450 170
Fort Morgan	2200	52	Durango	1485 224
Canon City	2200	46	Leadville	1500 141
Montrose	2300	51	Canon City	1575 194
Fort Collins	2400	60	Walsenburg	1625 71
Boulder	2500	71	Longmont	1700 265
Durango	2500	30	Cripple Creek	1770 177
La Junta	2600	48	Greeley	1800 462
Greeley	2700	67	Fort Collins	1800 325
Grand Junction	2750	58	Trinidad	2000 400
Cripple Creek	3000	78	Grand Junction	2100 294
Trinidad	3000	71	Boulder	2500 567

If the work of the Superintendent be gauged by the number of assistants he has, Grand Junction stands sixth in the list of 21. Gauging the work of the High-School Principal by the average daily attendance for October, 1915, (1) Grand Junction stands fifth in a list of 20. In salary paid to these two men, Grand Junction stands third in the case of the Superintendent and second in the case of the Principal.

Excluding the Superintendent, High-School Principal, and special supervisors (unless the latter spend ten or more periods per week in high school), the comparable Colorado systems are arranged in Table No. 13 according to the average salaries paid high-school teachers and grade teachers.

- Number of assistants can not be taken because several divide time between the high school and the grades.

TABLE NO. 13.
Showing the Average Annual Salaries of Teachers, 1915-16

	In High School		In Elemen- tary Schools
Walsenburg	\$ 831.50	Fort Morgan (1) ..	\$639.00
Loveland	832.00	Delta	647.00
Delta	815.00	Walsenburg	649.00
Glenwood Springs..	847.00	Longmont	682.00
Lamar	855.00	Salida	686.00
Rocky Ford	899.00	Fort Collins	703.00
Montrose	917.00	Rocky Ford	704.00
La Junta	934.00	Canon City	732.00
Fort Morgan	958.00	Montrose	742.00
Salida	972.00	Glenwood Springs	745.00
Colorado City	987.00	Leadville	750.00
Leadville	989.00	Grand Junction	759.00
Grand Junction ...	994.00	Boulder	765.00
Canon City	1015.00	Cripple Creek	806.00
Longmont	1038.00	Trinidad	831.00
Durango	1042.00	Colorado City	870.00
Greeley	1078.00		
Cripple Creek	1089.00		
Fort Collins	1106.00		
Trinidad	1109.00		
Boulder	1145.00		

In a group of 21, Grand Junction falls to ninth place in salaries of its high-school teachers; in a group of 16, it is fifth in salaries paid grade teachers.

Have Salaries Increased?

The suggestion has been made that Grand Junction has steadily raised the salaries of its teachers, and that the teachers should be willing to assist the community by agreeing to a temporary cut in salary. But since no one has suggested the application of this principle to any other class of workers than teachers, this proposition must be examined with some care. Have salaries of teachers in Grand Junction really increased? Table No. 14 makes it clear that they have *absolutely*. But salaries have increased *absolutely* in all lines of employment, because the cost of living has advanced. In fact the general rise in cost of living tends to be reflected pretty closely by the general rise of wages.

TABLE NO. 14.
Showing the Average Salaries of Grand Junction Teachers (2)
Since 1904-5.

Year	1904-5	1910-11	1915-16
High School	\$630	\$975	\$994 (\$898.50 for women)
Elementary Schools	625	700	759 ..

To find whether teachers in Grand Junction are actually better paid now than ten years ago, the Committee gathered

1. For 1914-15.
2. Excluding Superintendent, High-School Principal, and special supervisors with less than ten periods per week in high school.

a body of information regarding remuneration in other fields. The increases in Grand Junction for the past decade are as follows:

City firemen, from \$65 to \$75 per month.....	15	per cent
Bricklayers, from \$5 to \$6 per day	20	per cent
Carpenters, from \$3.75 to \$4.50 per day	20	per cent
Laborers in building trades, from \$2.50 to \$3 per day ...	20	per cent
Grade teachers, from \$625 to \$759 per year	24	per cent
Common laborers employed by the city (hours reduced from ten to eight), from \$2 to \$2.50 per day	25	per cent
Painters and Paperhanglers, from \$3 to \$4 per day.....	33 1-3	per cent
Clerks (estimate of a leading merchant)	33 1-3	per cent
High school teachers (women only), from \$630 to \$898.50 per year	41	per cent

Printers, including foremen, compositors and pressmen, have variously increased from \$18 to \$21-24 per week, amounting to 16 2-3—33 1-3 per cent. Clerks and assistants in the county offices have been raised from \$78 to \$82.50 per month, with bookkeepers running at \$90, \$110 and \$115 per month; the increase then would vary from 6 per cent to over 45 per cent. The increase for women teachers only is figured in the high school, because women only were working as assistants in 1904-5, whereas such is not the case now. *. Were the term of school reduced to 36 weeks and teachers' salaries reduced accordingly, the rates of increase for the ten years in grades and high school would sink to 15 per cent and 35 per cent respectively.*

If we add to this mass of evidence certain other facts relating to the cost of living, which is 20-25 per cent higher in Grand Junction now than ten years ago, it is almost certain that salaries of grade teachers have not increased since 1904-5, and that salaries in high school have increased only 15-20 per cent.

Percentage Cost for Different Purposes

There remains only the problem of economy. Can existing costs be reduced without impairing efficiency? The Committee has given very careful attention to the several suggestions of citizens and taxpayers, whether expressed by bodies or by individuals. The relative cost for different purposes has been calculated for the schools of many cities of five to ten thousand, and the results have been published by the United States Bureau of Education. The Grand Junction system has been tested by this criterion. The per cent of the total operating expenses that goes for different purposes is shown in Table No. 15 for Grand Junction together with the average for 48 other cities, one of which was selected from each state. Figures for Grand Junction are for 1914-15, except for special supervisors, where the approximate cost for 1915-16 is used.

TABLE NO. 15.

Show ing the Approximate Per Cent of Total Operating Expenses for Six Different Purposes.

PURPOSE	Grand Junction	48 Other Cities
Administration	9.3	7.1
Wages of Janitors	7.42	6.37
Fuel	1.26	3.25
Libraries and Textbooks	3.34	2.41
Special Supervisors	7.55	3.92
Total Salaries (excluding superintendent)	71.53	70.64

Reducing Cost of Administration

The *Administration* costs include salaries and expenses of the Superintendent, his clerk, the Secretary of the Board, and the truant officer; election expenses; the school census; operation and maintenance of the offices; legal service and auditing; stationery and postage for general office. The preceding table shows that administrative costs in this system are about \$1400-1500 more than the total cost of the system would lead one to expect. The Committee is of the opinion that by a union of the offices of Superintendent and Secretary the present work of two clerical employees can be performed by one. The school census, which has been taken by other parties at additional cost, can be taken by the truant officer, who should be placed on a contract of nine months instead of twelve. At the expiration of his present contract and during the existing financial depression the Superintendent might fairly be asked to pay his own expenses to educational gatherings in consideration of the comparatively satisfactory salary he receives. But should the Board deem it wise to continue the present arrangement, the Committee suggests that the allowance be made after the expense has been incurred and upon the presentation of vouchers, rather than beforehand according to a lump estimate prepared by the Superintendent.

Reducing the Cost of Janitor Service

The janitor service is performed by the employees of a chief engineer, who takes the entire contract on a bid of approximately \$5,100, including responsibility for maintenance of clocks. This contract is granted without competition. The proper expense for this service is lowered by such factors as the reduction in number of heating plants by grouping buildings; the presence of lights in buildings to enable a janitor to do all his own work instead of hiring helpers on short winter days; the performance of skilled labor by the janitors to dispense with or reduce bills for carpenters, glaziers, etc. The Committee has considered these matters in relation to the Grand Junction situation, and has canvassed the approximate cost of labor employed by the chief engineer. Its conclusion, based also upon Table No. 15, is that the cost for this item should be reduced about 15 per cent by a resort to competitive bids if necessary.

The economy in fuel is a striking feature, the cost being less than half the normal. The condition, however, has not always been so satisfactory. Fuel shows a very heavy decrease immediately after a heavy expense for plumbing and heating. The efficiency of different heating plants, or janitors, can be studied from the variations in cost per room in the larger buildings. The advantage of a central heating plant is 40-50 per cent, and goes a long way to explain the low cost for fuel in the whole system. The result of high ceilings, of large and somewhat wasteful halls, is evident, too, in the differences between the three buildings which have their own plants.

TABLE NO. 46
Showing the Expense for Plumbing and Heating, and Fuel

YEAR	Plumbing and Heating	Fuel	Cost for Fuel per Room			
			Hawthorne	Emerson	High	Central Plant for Franklin, Lowell and Whittier
1911-2	\$ 319.75	\$1,246.35	---	---	---	---
1912-3	1,930.73	1,432.47	21.19	36.61	31.63	17.79
1913-4	109.26	983.81	16.19	22.82	24.32	11.97
1914-5	66.75	842.72	14.56	19.79	23.92	9.10

Reducing the Cost for Books

The book bill for 1914-15 was \$2,238.65, which is \$240 less than in the preceding year. Stricter economy might easily have been practiced in this particular. Other than reading books have been duplicated in some of the grade rooms. For the collateral reading in High School English two or three times the required number of copies have been purchased in a number of cases.

Reducing the Expense for Special Supervisors

Table No. 15 also indicates too large an expense for special supervisors. This excess may be *partly apparent* because of the difficulty of separating special teachers from special supervisors. The Committee is not disposed to pass upon the special subjects in a wholesale manner, but to recommend reductions where little or least harm will result.

The very active life of young children reduces their need of directed physical training to the provision of suitable playground equipment and supervision of the playground by the teachers. The size of the children and the character of their clothing will permit them to practice suitable exercises during school hours under the direction of their regular teachers. A physical director should be retained on half time for the girls of the grammar grades and the High School. Space for dressing quarters and class exercises can be found in the High School building, and the contract with the Y. M. C. A. can be discontinued. The older boys are less inclined to sedentary lives. Inter-school and inter-

class contests can be arranged and directed by the regular faculty. Rarely do schools the size of Grand Junction pay for coaches outside the faculty.

A part-time supervisor of penmanship is not sufficient to do this special work satisfactorily. The position should be discontinued until a full-time supervisor can be engaged.

Manual Training suited to grades below the sixth, and possibly the seventh, can be handled by the teachers of the respective rooms. Unless the equipment can be installed to place the work on a proper basis for the High School and upper grades, the department should be discontinued. In any case, it should be removed from its present quarters, where its confusion hampers other instruction. The room occupied by the Commercial Department would be a good place for it.

Household Arts must occupy a large place in the practical lives of a great majority of the girls. Music ought to be prominent in the recreational lives of all. Neither of these subjects can receive effective, much less unified treatment by regular teachers. The Committee favors strongly the continuance of both departments.

Reducing the Cost for Kindergartens

The public kindergarten is not necessarily a feature in cities the size of Grand Junction. It has undoubted advantages, yet it is patronized by only a small part of the eligible children. Distance from the one building where it is operated prohibits the attendance of many. It is a valuable adjunct to, but not an integral part of the public-school system. Hence there is nothing inconsistent with asking those who desire kindergarten privileges to pay for them as any other private facility is paid for. The Committee favors the abolition of the kindergarten until economic conditions improve.

Reducing the Cost for Commercial Instruction

The function of a commercial department is much broader than the mere development of typists, stenographers, and bookkeepers for the business world. In this department alone can we familiarize the student with a great section of life, which touches all normal people and which falls outside the conventional pale of all other departments.

Question has been raised as to the cost of the commercial instruction. Since it is a regular department of the High School, its cost should be compared with that of other departments. Table No. 17 presents (1) the total cost of each department of the High School, (2) the average size of classes, (3) the periods per week taught by each teacher, (4) the per cent constituted by each department of the total number of periods, or "hours," spent by all students under instruction, and (5) the cost in cents of one "hour" of instruction for a student.

TABLE NO. 47
Showing Relative Costs of High-School Departments. (1)

Department	Total cost of Instruction	Average size of Classes	Hours of Teaching per Teacher Weekly	Per cent of Total Instruction "Hours"	Cost per Instruction "Hour" in Cents
English	\$2,660	19.5	25	23.7	4.6
Latin	1,634	17.	25	12.7	5.5
German	722	18.	25	5.9	5.2
History and Civics..	2,304 (1634)	20.	25	14.4	6.8 (4.8)
Mathematics	1,716	23.	25	17.0	4.3
Science	2,613 (1911)	16.5	27	13.8	8.0 (5.7)
Household Arts....	244	17.5	35	2.8	3.7
Commercial	1,423 (1164)	15.	30	9.6	6.3 (4.9)

The six numbers placed in parentheses show results by a second method of figuring. The principal, assistant principal, and supervisor of writing teach in the Science, History, and Commercial departments respectively. If the *actual* salaries paid these teachers be charged to the particular departments, the first figure in each case is correct; but if their salaries be charged to their respective departments at the regular high-school maximum of \$950 per year, the amounts in parentheses are correct. In either case the cost per instruction hour in commercial subjects ranks above the average in spite of the larger number of hours per week worked by the teacher. This comes from the small classes, the average being only 15. The Committee recommends a contraction of the teaching force of this department to practically one teacher, and the removal of the department to the present offices of the Superintendent. Several disadvantages now inhere in isolating commercial students from the rest of the High School.

Reducing the Length of the School Term

The progress of education points undoubtedly toward the lengthening of the school term. Many schools now continue forty or more weeks per year. The tendency is toward an all-year school. Grand Junction took a step in advance when the term of school was increased from 36 to 38 weeks. It is therefore with reluctance that the Committee advises a *temporary* reduction of the term to 36 weeks. It is true that only about a dozen districts

1. No available published study of high-school costs gives the method of computation. It was therefore necessary to adopt a basis of our own, which is as follows:
 - a. To each department is charged such part of each teacher's salary as is proportionate to the amount of time he spends in that department.
 - b. The cost of a teacher is based on instruction only, no allowance being made for duty in the study hall or out of school.
 - c. The size of class is the average of the total enrollment for the semester and the number remaining to the close of the semester.
 - d. The size of the class is multiplied by the number of periods per week spent under the teacher, and their product is multiplied by 38, the number of weeks in the year, to secure the total number of "instruction hours." The basis then becomes the time spent by the student under the teacher, and has no definite relation to the credit carried by the course.

in the state now have over 36 weeks; but the reluctance of the Committee comes principally from the fact that this will mean a reduction in salaries of the rank and file of teachers.

Tuition Students

Minor sources of possible leakage have been examined. Districts supporting high schools are liable to imposition by neighbors without high schools. It is possible that in Grand Junction some pupils, liable for tuition, have escaped paying it. A study of the relative proportion of new students in High School and in grades convinces the Committee that there are hardly a half dozen attending the Grand Junction High School without tuition, whose parents are without a legal residence in the district. This makes no allowance for that handful of ambitious young men and women who are self-supporting and may claim residence for themselves. Tuition in the High School is \$45 per year, which is slightly less than the cost of instruction; in the grades it is \$30 per year, which is somewhat more than the cost of instruction. This is as it should be.

The Telephone Exchange

In 1912 a telephone exchange was installed in the school system on a five-year contract, but without initial cost. With ten telephones in the system and a certain amount of long-distance calls, the telephone bill for 1914-15 was approximately \$317. This is over \$100 less than the cost would have been without the exchange. The saving of time to the Superintendent and principals may be considered at least to offset the trouble to the office of acting as its own "central."

Leave of Absence to Teachers

The rule for granting leave to teachers allows not to exceed four weeks per year on sick leave at half pay, and four days at full pay on account of death in one's immediate family. There is no evidence that advantage has been taken of the latter; in 1914-15 four teachers lost in all 12 1-2 days under this clause. During the same year a total of 14 teachers received 23 days pay for 46 days missed on account of sickness. The half-pay rule is not common, but it is very efficient.

The various recommendations of the Committee may be summarized as providing for the following reductions in annual expense:

Administration	\$1,300
Janitor Service	750
Special Supervisors	2,750
Kindergarten	1,500
Commercial Department	500
Reduction of School Term	2,750
Substitution of Special Teacher of Ungraded Room for Batavian System	400
 TOTAL	 \$9,950

The Committee wishes in conclusion to reiterate that several of these reductions are advisable only pending the return of more prosperous times to the people of Grand Junction.

UNIVERSITY OF MICHIGAN



3 9015 06276 7465

BOUND

JUN 28 1923

**UNIV. OF MICH.
LIBRARY**